

SOLANUM AND ITS CLOSE RELATIVES IN FLORIDA¹

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Among the wide variety of plants received for determination by the University of Florida Agricultural Experiment Station, members of the genus *Solanum* and its close relatives *Lycianthes* and *Lycopersicon* appear from time to time. Prompted as an aid to identification of such materials, this paper includes 32 species known to have occurred in the state in the wild and in cultivation. Table 1 lists the Florida taxa with some of their characteristics. The assemblage is a good representation of the diversity in the group, yet members are recognizable by even unsophisticated workers as belonging to *Solanum* or a genus much like it. The taxonomic diversity of the Florida species facilitates their identification, especially of the introduced species, but some native groups are undergoing evolution, and their taxonomic distinctions are not so clear. To separate the taxa, Key No. 1 (p. 830) makes use of vegetative and floral characters, and Key No. 2 (p. 833) makes use of characters of the fruit.

METHODS

Living plants were studied in most counties of Florida during the years 1966–68, and many plants were grown in the greenhouse in Gainesville from seed collected during field visits. Seed from a number of non-Florida sources, particularly New Zealand, California, and the Antilles was grown out for comparison. Major North American and European herbarium holdings of *Solanum* specimens from Florida were studied either through loans or personal visits. Chromosomes of several taxa were counted using anther squash technique, and some of these counts were reported earlier (D'Arcy, 1969). The count of *Solanum racemosum* reported here was made from root tip squashes. In noting chromosome counts, usually only one recent report is cited although, there are sometimes more in the literature. Pollen was acetolysed according to the method of Erdtman (1952) using Florida material. Measurements are the range of ten normal grains from three different plants, or where fewer plants were available, from one or more flowers.

¹ Revised portion of a thesis written under the guidance of D. B. Ward and submitted to the University of Florida in partial fulfillment of the requirements of the M.S. degree. Financial support was provided through the offices of D. B. Ward and H. L. Popenoe, both of the University of Florida, and W. H. Lewis, Washington University, St. Louis. Curators and other associates of the many herbaria who lent specimens, sent seed, provided bibliographic and nomenclatural advice and otherwise assisted are acknowledged with gratitude. The following deserve special mention: R. A. Howard, The Arnold Arboretum, Cambridge, Massachusetts; W. T. Stearn, British Museum (N.H.); J. M. Edmonds, Cambridge University; A. Skovsted, Botanical Museum, Copenhagen; J. Beckner, St. Petersburg, Florida; G. R. Proctor, Institute of Jamaica, Kingston; P. H. Raven, P. Goldblatt, and M. R. Crosby, Missouri Botanical Garden; J. C. Semple, University of Missouri, St. Louis; C. D. Adams, University of the West Indies, Mona; L. Granel de Solignac, Institut de Botanique, Montpellier; P. A. Hyypio, Extension Service, Ithaca, New York; R. H. Powell, New Zealand Department of Agriculture; G. T. S. Baylis, University of Otago; A. Lourteig, C. Sastre, M. Jolignon, and H. Heine, Laboratoire de Phanerogamie, Paris; R. Woodbury, University of Puerto Rico Agricultural Experiment Station; the late C. V. Morton, Smithsonian Institution; the late L. S. Shinnars, Southern Methodist University, Dallas; D. R. Windler, Towson State College, Baltimore; F. Stafleu and J. A. Leussink, International Association for Plant Taxonomy, Utrecht.

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TABLE 1. Some features of the Florida taxa of *Solanum*. The type species of a section is indicated by an asterisk following the name. An asterisk in the chromosome column indicates a count for Florida material.

Taxon	Florida occurrence	Florida range	Native range	Leaves	Fruit color	Corolla color	Anther length, mm	Pollen diameter, μ	Chromosomes $n =$
Subgenus <i>Solanum</i>									
Sect. <i>Solanum</i>									
<i>S. americanum</i> Mill.	common	widespread	widespread	toothed/ entire	shiny black	white(purple)	0.9-1.4	17.0-20.0	12*
var. <i>baylisii</i> D'Arcy	rare	central	Old World	toothed/ entire	black	white	2.5-4.0	21.0-24.0	12
<i>S. nigrescens</i> Mart. & Gal.	common	widespread	widespread	toothed/ entire	dull black	white	2.5-2.9	21.0-23.5	12*
<i>S. nigrum</i> L.	rare	scattered	N. temperate	toothed/ entire	dull black	white(purple)	2.2-2.8	28.0-35.0	36
<i>S. villosum</i> Lam.	extinct	panhandle	Old World		red		—	—	24
Sect. <i>Leiodendra</i>									
<i>S. diphyllum</i> L.	cultivated/ escape	widespread	Mexico	entire	beige	white	ca. 2	14.0-16.5	12*
<i>S. glauco-phyllum</i> Desf.	extinct	panhandle	Argentina	entire/ sinuate	—	blue	3-6	—	12
Subgenus <i>Brevantherum</i>									
Sect. <i>Brevantherum</i>									
<i>S. erianthum</i> D. Don*	common	south	Caribbean	entire	yellow	white	ca. 3	16.0-19.5	12*
<i>S. mauritianum</i> Scop.	rare	central	Argentina	entire	yellow	deep blue	ca. 3	19.0-27.0	12
Sect. <i>Pseudo-Capsica</i>									
<i>S. pseudo-capsicum</i> L.*	cultivated/ escape	north	Brazil	entire/ sinuate	red	white	2.5-3.0	—	12

TABLE 1. (Continued.)

Taxon	Florida occurrence	Florida range	Native range	Leaves	Fruit color	Corolla color	Anther length, mm	Pollen diameter, μ	Chromo- somes $n =$
Subgenus <i>Leptostemonum</i>									
<i>S. donianum</i> Walp.	common	south	Caribbean	subentire	red	white	4.0-5.0	25.0-29.0	12*
Sect. <i>Acanthophora</i>									
<i>S. ciliatum</i> Lam.	common	widespread	Caribbean	angular lobed	red	white	ca. 6	24.0-30.5	—
<i>S. mammosum</i> L.*	cultivated	—	Tropical America	angular lobed	yellow	white	10-12	—	11, 12
Sect. <i>Aculeigerum</i>									
<i>S. wendlandii</i> Hook. f.*	cultivated	south	Central Amer.	rounded lobed	—	blue	8.0-10	19.0-23.5	12*
Sect. <i>Androceras</i>									
<i>S. rostratum</i> Dun.*	infrequent	scattered	Western U.S.	dissected	spiny	yellow	6-7/11-14	20.5-24.0	12
<i>S. citrullifolium</i> A.Br.	extinct	north-central	Mexico, Texas	dissected	spiny	purple	7/13	—	—
Sect. <i>Cryptocarpum</i>									
<i>S. sisymbri- ifolium</i> Lam.*	infrequent	north	Argentina	dissected	red	white	ca. 8	29.5-40.0	12
Sect. <i>Eriophyllum</i>									
<i>S. jamaicense</i> Mill.*	rare	central	Tropical Amer.	angular lobed	red	white	3.0-4.0	—	12
Sect. <i>Lasiocarpum</i>									
<i>S. pseudolulo</i> Heiser	cultivated	south	South America	angular lobed	red/orange	white	ca. 6	16.0-21.0	—
Sect. <i>Nycterium</i>									
<i>S. tridynamum</i> Dun.	cultivated	south	Mexico	subentire	brown	purple	5/12	—	12*

TABLE 1. (Continued.)

Taxon	Florida occurrence	Florida range	Native range	Leaves	Fruit color	Corolla color	Anther length, mm	Pollen diameter, μ	Chromo- somes $n =$
Sect. <i>Persicariae</i>									
<i>S. bahamense</i> L.	common	south	Caribbean	subentire	orange	mauve	ca. 7	19.0–27.0	12*
var. <i>luxurians</i> D'Arcy	common	Key Largo	Key Largo	subentire	red	deep purple	6.0–7.0	—	12*
var. <i>rugelii</i> D'Arcy	extinct	south	—	subentire	—	—	4.0–6.0	—	—
<i>S. racemosum</i> Jacq.	rare	south	Caribbean	subentire	red	white	6.0–10	—	12
Sect. <i>Melongena</i> (including Sects. <i>Lathyrocarpum</i> , <i>Leprophora</i> , <i>Torva</i>).									
<i>S. melongena</i> L.	cultivated	widespread	India	angular lobed	black	purple	ca. 6	26.5–33.0	12
<i>S. dimidiatum</i> Raf.	infrequent	north	Southern U.S.	angular lobed	yellow	purple	6.0–8.0	25.0–30.0	36*
<i>S. wrightii</i> Benth.	cultivated	south	South America	angular lobed	—	purple to white	ca. 15	—	—
<i>S. carolinense</i> L.	common	widespread	Eastern U.S.	angular lobed	yellow	purple or white	6.0–11	25.0–29.0	12
var. <i>floridanum</i> Chapm.	scattered	north	Florida	dissected	yellow	purple or white	—	—	12*
<i>S. elaeagnifolium</i> Cav.	infrequent	scattered	Mexico, Texas	entire/ sinuate	yellow	purple	6.0–8.0	27.0–31.0	12
<i>S. torcum</i> Sw.	rare	south	Tropical Amer.	angular lobed	yellow	white	9.0–12	21.5–34.0	12
Subgenus <i>Potatoe</i>									
Sect. <i>Petota</i>									
<i>S. tuberosum</i> L.*	cultivated	widespread	Chile	dissected	yellow	white	ca. 6	—	—
Sect. <i>Jasminosolanum</i>									
<i>S. jasminoides</i> Paxt.*	cultivated/ escape	north	Brazil	rounded lobed	—	blue/white	ca. 4	—	12
<i>S. seaforthianum</i> Andr.	cultivated/ escape	widespread	Central Amer.	rounded lobed	—	blue	2.5–3.5	17.0–21.0	12*

THE RELATED GENERA

Four genera of the Solanaceae have anthers that open by terminal pores; three of these and the close relative, *Lycopersicon*, can be separated in the following key. For generic descriptions and synonyms see D'Arcy (1973). The fourth genus with apical pores, *Triguera* of the Mediterranean region, is not of concern here.

- 1 Anther connectives strongly thickened and evident the whole length of the anther; inflorescence arising at a dichotomy of the stem *Cyphomandra*
- 1' Anther connectives not thickened or conspicuous; inflorescence axillary, opposite a leaf, or lateral on a stem, seldom arising at a dichotomy of the stem.
 - 2 Anthers extended into sterile tips, dehiscence by ciliate, longitudinal slits; seeds pubescent *Lycopersicon*
 - 2' Anthers opening by terminal pores, without sterile tips; seeds glabrous.
 - 3 Calyx with 5 main ribs or veins, the lobes mostly opening by splitting at the sutures; leaves often compound, toothed or lobed *Solanum*
 - 3' Calyx with 10 main ribs or veins, the apex truncate and stretching to permit egress of flower and fruit, leaves simple, mostly entire *Lycianthes*

Cyphomandra is a primarily South American genus of 50–60 species. One species, *Cyphomandra crassifolia* (Ort.) Macbr. (= *C. betacea* Cav.), is cultivated in many parts of the world as the “tree tomato,” but no Florida material has been seen. It has a pendulous inflorescence of whitish flowers and a red, juicy fruit. It is cultivated as a food crop in New Zealand.

Lycopersicon is closely related to sect. *Petota* of *Solanum* but differs in its pubescent seeds, different alkaloids and anthers which have sterile tips and dehiscence by longitudinal slits. The yellow flowers and lowland rather than upland distribution also differ from species of sect. *Petota*, although they are not unknown in other groups in *Solanum*. *Lycopersicon* includes about seven species of Ecuador and Peru, as well as the cultivated tomato.

Lycianthes is closely related to *Solanum* and differs most obviously in the structure of its calyx. The primary calyx lobes or teeth are truncate and fused into an entire rim or “sleeve.” The 10 vascular traces running through the calyx give rise to 1–10 teeth subtending this sleeve in one or two series. The species discussed here has less obvious teeth and a less obvious rim than most species of *Lycianthes*. The genus includes nearly 200 rare species in tropical America and Asia.

THE TAXONOMY OF *SOLANUM* IN FLORIDA

The genus *Solanum* is one of the largest in the plant kingdom. Some 3,500 species have been described, of which between a third and a half are sound. Although the genus is strongly centered in the New World, there are many species elsewhere. The most recent conspectus (D'Arcy, 1972) notes seven subgenera and 50 sections.

The Florida members of the group have long been known to botanists in both Europe and America. A third of the species had been described within 15 years of 1753, and only one, an introduction from South America, was named in this century. Few of these names were based on plants collected in Florida, and comparison of authentic specimens from different sources has

revealed considerable redundancy in names. Some of the Florida groups are discussed here in detail. The Florida species fall into four subgenera and 15 sections, and Table 1 lists the species in their sectional placement. One Florida element, *Solanum donianum*, is assigned to subgenus but not to section in the hope that later insight will clarify its relationships.

Section *Solanum*, or the *Solanum nigrum* complex as it is sometimes called, is taxonomically difficult. Dunal (1852), Jørgensen (1928), Bitter (1911–1923), Stebbins and Paddock (1949), Baylis (1958), Heiser (1955), and Edmonds (1968 1972) have made important contributions to the knowledge of this group, but the situation is still far from clear. The group includes both diploids and polyploids. *Solanum nigrum* L. sensu stricto is a hexaploid from northern Europe and Asia which is present in the northern United States. It is almost absent from the South. In the early years of this century seed was widely sold under the name "Wonderberry" (Heiser, 1969), and one of the three Florida collections of the species was taken in that era. *Solanum nigrum* is difficult to distinguish from *S. nigrescens*, but it is apparently not interfertile with it or with any of the other diploids (Stebbins & Paddock, 1949; Baylis, 1958). *Solanum villosum*, known in the New World only by the 1899 Curtiss collection from Pensacola, is a tetraploid which does not interact with other species in Florida. Material from North America formerly known as *S. villosum* is in reality *S. sarachoides* Sendt., a diploid species from Argentina which does not occur in Florida. *Solanum furcatum* Poir., a hexaploid of the Pacific coast, resembles some Florida collections of *S. nigrescens*, but pollen measurements verified that all such Florida collections are, in fact, *S. nigrescens*.

The diploids in sect. *Solanum* are widespread and plastic, and there is interfertility between those occurring in Florida. *Solanum americanum* is common. It is usually easily recognizable in fruit. The berry is shiny black, held erect and subtended by a strongly reflexed calyx. The plant does not root at the nodes, and the root is short and fibrous. Herbarium material is identifiable by the small anthers. The species is cosmopolitan and ranges as far north as Connecticut and Indiana in the eastern United States. Plants from the West Indies have shorter anthers, often less than 1.1 mm long, but are not otherwise separable. Edmonds (1968) recognized a glabrate and a puberulent variety in South America, but this difference is not taxonomically significant in Florida. Plants with large bushy habit (to 1 m × 1 m) with small leaves and some plants with minute leaves were found in various parts of the state, but their greenhouse-reared progeny were normal in appearance. *Solanum nigrescens* is also common in Florida. It differs from *S. americanum* in its dull, downward deflected fruits with applied calyces and in its elongate root system, which permits colonization of palm tree sheaths and cliff-sides. It is also somewhat salt tolerant and may be found beside beaches within reach of salt spray, these plants sometimes developing flowers much larger than their inland counterparts. The third diploid taxon identified in Florida is described here as *S. americanum* var. *baylisii*. It is similar in appearance to *S. nigrescens* but has longer internodes and narrower leaves. The anthers are in the size range of *S. nigrescens*. As it appears to hybridize more readily with *S. americanum*, it is described under *S. americanum* rather than *S. nigrescens*.

One Florida collection clearly resembles plants grown from seed received from Baylis in New Zealand under the name *S. gracile*, and several other Florida collections taken in the vicinity appear intermediate between the Baylis plants and *S. americanum*. This may be a transitional element in the Florida flora, adventive and soon becoming submerged in a native gene pool. A similar situation is surmised for *S. racemosum* (see below).

Some data supporting the interfertility and intersterility of the two common Florida species has been published by Stebbins and Paddock (1949), Baylis (1958), and Heiser *et al.* (1965). Intersterility apparently varies with strains from different areas. One series of observations seems to bear out hybridization on a local scale. In 1966, in and around a palm tree in front of McCarty Hall, University of Florida, were a few plants of *S. nigrescens*, while in lawns and flower beds nearby were scattered plants of the typical "citrus grove" grade of *S. americanum*. In autumn 1968, previously marked plants in the palm tree were still alive and showing their original characters. In the lawn near the tree were new plants resembling *S. nigrescens* in all respects except that the berries were shiny as in the nearby populations of *S. americanum*. While it is not certain which plants had provided the seed for these new plants, they appear to be hybrids between the two species. In Florida, California, and tropical America *Solanum americanum* and *S. nigrescens* are morphologically and ecologically distinct, but in other parts of the United States these distinctions are obscure, and in large areas of the Midwest, a relatively uniform intermediate is found. One may speculate that this is a hybrid between the two elements which has stabilized over time by repeated backcrosses and fine attunement of the product to selective conditions in the region. The diploids of sect. *Solanum* may be referred to as a "syngameon" consisting in Florida of two or three semi-species—"partially interbreeding, partially isolated, sympatric population systems" (Grant, 1963). For practical purposes, it is more useful to consider *S. americanum* and *S. nigrescens* as species, bearing in mind their close relationship but stressing the fact that two descriptably different biological units are present. As species they can be recognized with careful attention to detail, but as infraspecific taxa the magnitude of difference present is not apparent. The morphological and ecological differences underly pharmacological and physiological differences, and it is well for them to be distinguished as clearly as possible.

Section *Leiodendra* in Florida embraces two quite different species. *Solanum glaucophyllum* should probably be placed in a distinct subsection, but *S. diphyllum* is much like many species of sect. *Leiodendra* in Central and South America.

Section *Brevantherum* has been revised recently by Roe (1967a; 1972). It includes about 30 species of North and South America with three species native or naturalized in the Old World.

Section *Acanthophora* is under study by Michael Nee, University of Wisconsin. The two species discussed here are readily distinguished, but in South America a number of species present taxonomic difficulty. The $n = 11$ chromosome number reported for *S. mammosum* is anomalous in the genus. These plants contain alkaloids of possible medicinal use.

Section *Persicariae* appears to be confined to the Caribbean region, with about six species in the Antilles, and Florida. Only one specimen, the type collection of *S. anacanthum* (see under *S. racemosum*) has been seen from Central America. The group is identifiable by its slender, ventrally stellate-pubescent anthers, which in Florida species and some others are tightly coherent into a tube. Members of the group appear to be interfertile and widely distributed by birds, which provides opportunities for hybridization and introgression. *Solanum racemosum* appears to be a transitional element of the Florida flora, occasionally adventive but unable to establish colonies distinct from the native *S. bahamense* with which it seems to hybridize. These plants were considered by Dunal (1852) and Seithe (1962) to belong to sect. *Graciliflora* (1852), a later name than sect. *Persicariae* (1813). A search for material of its type species, *S. graciliflorum* Dun., at Paris, Montpellier, and Geneva failed to turn up specimens or drawings of the Javanese plants upon which the name was based.

Section *Melongena* is here considered to embrace sects. *Lathyrocarpum*, *Leprophora*, *Oliganthes*, and *Torva* (see D'Arcy, 1972). Only sect. *Leprophora* has characters (trichomes) different from the others in the group. Its type species, *S. elaeagnifolium* Cav., and the closely related *S. hindsianum* Benth. from Mexico form a pair of distinctive species, but their difference does not seem to be of sectional magnitude. Two elements of the Florida flora are interesting. Both *S. dimidiatum* and *S. carolinense* var. *floridanum* seem intermediate in many ways between *S. carolinense* and another species; in the first case the other species is *S. melongena*, and in the second case the other species is *S. sisymbriifolium*. Both elements have features suggesting hybridity: *S. dimidiatum* in its more-or-less sterile fruit, and *S. carolinense* var. *floridanum* in its irregular venation and leaf lobing (see Wagner, 1962). However, the pollen examined of these two taxa appeared quite normal.

DISTRIBUTION AND ORIGINS

The 30 species of *Solanum* occurring in Florida differ in their adaptability to Florida conditions, as is indicated by their frequency of occurrence and distribution in the state. Only seven species may be termed common in the state, and three of these, *S. bahamense*, *S. donianum*, and *S. erianthum* are located in the extreme south. These are Caribbean species: the first two are confined to the northern Antilles and mainland, and the third ranges to the South American coast and is naturalized in the Old World. All grow on limestone substrates. *Solanum ciliatum* is also a Caribbean species, but it ranges north into Georgia and occurs in Africa and other parts of the Old World. Winter conditions set the northern limits of these four species. *Solanum ciliatum*, probably because of its low habit and sturdy rootstock, is able to withstand more northerly temperatures than the three arborescent species. The other three common species are not of a Caribbean distribution. *Solanum carolinense* is a species found throughout the eastern deciduous forest of North America, becoming less plentiful in southern Florida. North of the coastal plain it dies to the ground and overwinters by means of its elongate, tuberous roots. *Solanum carolinense* has been reported from Brazil

and occasionally from tropical countries, but apparently it is best adapted to seasonally cold climates. *Solanum americanum* and *S. nigrescens* are both near-cosmopolitan weeds of unknown origin, and they both range widely on both north and south bounds of Florida. In the tropics, *S. americanum* occurs from sea level to upper elevations, while *S. nigrescens* is absent from the lowlands. In temperate North America, *S. americanum* frequently behaves as an annual, but in Florida it overwinters, and its foliage survives mild frosts. These seven species would appear to be native elements successfully adapted to Florida conditions, although some are of southern and one is of northern affinity.

Presumably less well adapted to Florida conditions are those taxa of infrequent or local distribution, although this is not always corollary. *Solanum jamaicense* and *S. torvum* are both plentiful in the Caribbean region and are persistent in Florida as rare populations. *Solanum seaforthianum* is also native to the West Indies and is naturalized in south and central Florida. It is sometimes grown for ornament. The usually bright or shiny fruits of *Solanum* plants are assumed to be bird dispersed, and transport of fruits from the nearby Antilles to Florida probably accounts for the introduction of these species to the North American mainland, although escapes from cultivation account for many of the populations of *S. seaforthianum* in Florida. Winter temperatures impose a northern limit to the range of most West Indian introductions, but the central Florida rather than south Florida localities for *S. jamaicense* and the fact that these species are persistent but rare argue that winter temperatures are not the only feature of the environment limiting the distribution of these plants. *Solanum rostratum* and *S. elaeagnifolium* are species of the western plains of the United States and Mexico, and they occur in Florida as apparently persistent but quite local populations. Introduced from other continents, *S. mauritianum* and *S. sisymbriifolium* are successful in restricted distribution, the first in one central Florida county and the second scattered across the northern edge of the state. The four species just mentioned are found in both Florida and in Argentina, *S. rostratum* and *S. elaeagnifolium* presumably introduced southward and *S. mauritianum* and *S. sisymbriifolium* introduced northward, perhaps via the Old World. Although seemingly well established in local populations, these introductions have been unable to expand beyond scattered sites. In no case has a species of *Solanum* become common or widespread in the state without being well represented in neighboring territory. The expansion from well established local populations to a widespread range with frequent occurrence is apparently a major achievement which none of the sparingly introduced species of *Solanum* has managed.

In addition to those species which are well established in Florida, eleven taxa occur in the wild only in what seems to be a transitory fashion, and they probably require repeated introduction to maintain their presence. *Solanum glaucophyllum* and *S. villosum* were reported only at the beginning of the century from Pensacola, perhaps brought in by ships' ballast and unable to persist. *Solanum citrullifolium* was introduced by the University and vanished soon after. *Solanum racemosum* may be introduced from time to time from the Windward Islands,

but it does not form colonies, and isolated plants presumably breed into the *Solanum bahamense* gene pool. *Solanum americanum* var. *baylisii* is presumed to disappear in similar fashion. Both of these taxa might persist in the absence of numerous individuals of such close relatives to hybridize with. *Solanum nigrum* is presumably reintroduced from cooler regions from time to time, but it has not become a part of the naturalized flora of the state. *Solanum tuberosum*, *S. jasminoides*, *S. pseudocapsicum*, and *Lycopersicon esculentum* are found in the wild, but they do not build up significant populations.

Six species are found in cultivation in the state but are not known to grow in the wild. Of these, *Solanum melongena* is an important crop plant in many parts of the state; and *Solanum wendlandii* is cultivated out-of-doors for ornament in the south, but it does not fruit. Four other species: *S. pseudolulo*, *S. wrightii*, *S. tridynamum*, and *Lycianthes rantonnei* are sold by nurseries and are probably planted out-of-doors. *Solanum ochraceo-ferrugineum* appears in plantings at Fairchild Tropical Gardens, presumably an adulterant of other plant materials from Central America. *Solanum topiro* Dun. (as *S. hyporrhodium* A. Br. & Bouché) was introduced to Florida in the 1950's as a curiosity and for experimental purposes, but the stock soon died out (see Schultes, 1958). There are no specimens at the University of Miami, where the work was done. It is likely that other species enter the nursery trade or appear in cultivation for scientific or horticultural purposes from time to time.

Lawrence (1960a, b) listed species of *Solanum* occurring in cultivation in the United States. *Solanum quitoense* Lam. is noted as occurring in Florida. It is a stellate-tomentose herb closely resembling *S. pseudolulo*. Also listed are "*Solanum Donnell-Smithii* Coult." [= *S. lancaefolium* Jacq. (D'Arcy, 1973)], a noxious vine with recurved spines from the Antilles and Central America, and *Solanum havanense* Jacq., an attractive shrub or vine with small, pale-blue flowers from Cuba. No Florida material of these species was seen.

CHARACTERS OF THE FLORIDA SPECIES

Of the 21 species of *Solanum* occurring in Florida outside of cultivation, 10 are perennial herbs, some of these short-lived; three are high climbing vines; and the others are woody—shrubs or trees. Only two of the herbs, *S. rostratum* and *S. americanum*, are sufficiently short-lived to sometimes behave as annuals; and only one species, *S. nigrescens*, sometimes occurs as an epiphyte. Two species have tuberous roots, but the woody, cigarette-like tubers of *S. carolinense* are quite different from the yam-like tubers of *Solanum tuberosum*, the common potato. Several of the herbs proliferate by sarmentose roots, and this enables some species to withstand periods of cold or drought. The pith of most species is solid but may be fistulose in *S. sisymbriifolium* and *S. tuberosum*. The genus *Lycianthes* consists mainly of vines or low herbs, but the species grown in Florida is a shrub. Most species of *Lycopersicon* are scandent herbs.

Hairs are simple in the subgenera *Solanum* and *Potato*; they are branched or stellate in subgenus *Brevantherum*, while in subgenus *Leptostemonum* they are stellate. Hairs with arms arising from one point are referred to as stellate (stel-

lae); the continuation of the axis beyond this point being the midpoint, and if the arms (or radii) are more than 12, the hair is echinoid, if fewer than 12, it is pauciradiate. When the rays come off in one plane, the hair is porrect. When the arms come off the axis at more than one point, it is branched or dendritic. When the arms of porrect hairs are basally fused, the hair is termed scutellate, but such hairs are not well developed in any of the Florida taxa. Stellate hairs with stiff, multiseriate stalks are bristles, and these occur on the calyx of *S. jamaicense*. The bayonet hair, which has a larger basal cell and an elongate, narrower acicular terminal cell, is present in some species of *Solanum* in tropical America, but occurs in the Florida taxa only as an admixture to the otherwise stellate indumentum of *S. sisymbriifolium*. In some cases, e.g. sect. *Acanthophora*, plants at juvenile stages bear sessile, porrect hairs, but with maturity the plant bears hairs with reduced or obsolete arms, and the remaining midpoint remains as an apparently simple hair. Glandular or viscid species usually bear glands at the tips of the simple hairs or midpoints of stellate hairs.

Calyces provide useful information for recognizing species. In sects. *Cryptocarpum* and *Androceras*, the spiny calyx is accrescent, completely enveloping the fruit. In the first case, the calyx splits at maturity exposing a scarlet berry while in the second case it is persistent as part of the dispersal unit of the species. *Solanum seaforthianum* has an almost truncate calyx, the teeth umbonate and resembling that of species of *Lycianthes*. This calyx structure is almost unique in *Solanum*. In other cases, the five short calyx lobes split at the suture to yield teeth (lobes) of various length, which may reflex or remain applied to the fruit.

Anther shape is important in distinguishing subgenus *Leptostemonum* (from the Greek meaning slender anther). Here the anther tapers to a point, and the apical pores are small. In other subgenera, the pores are relatively large and may coalesce. Although *Solanum* anthers are sometimes reported to open by terminal pores which sometimes extend to become longitudinal slits, this is apparently an artifact of the herbarium sheet. In no case did this occur in any living anthers seen; rather, in many species, a line of weakness appears forming longitudinal slits distinct from the terminal pores. In sect. *Leptostemonum* such slits may appear in the basal third of the anther; in other groups the slits appear higher up. Pubescence on stamens is often consistent for sections, e.g. the ventral surface of anthers in sect. *Persicariae* and the ventral surface of filaments in sect. *Solanum*.

Fruits vary sufficiently to be diagnostic to species or even variety in many cases, and Key No. 2 separates the Florida taxa on the basis of fruit. Fruits in the genus are mostly juicy berries with eye-catching appearance, and the genus is generally assumed to be bird dispersed. The only cases for which the writer can personally vouch of birds eating *Solanum* fruits are the frequent feeding on berries of sect. *Solanum* by mockingbirds, which sometimes entered the Gainesville greenhouse, and greedy feeding on fruits of *Solanum pseudocapsicum* by chickens at an upland Panama farmstead. Some species are apparently dispersed by other vectors. The spiny fruits in sect. *Androceras* suggest mammal dispersal, and the persistent, capsule-like berries of *S. elaeagnifolium* and *S. tridynamum* suggest

a mechanical, shaker sort of seed release. Not all *Solanum* berries are juicy: in sect. *Acanthophora* the flesh is a moist pulp with a large moist locule, and in *S. melongena* the seeds are embedded in moist pulp. The interesting fruit of *S. dimidiatum* is described below.

Seeds of most species of *Solanum* are discoid or lenticular and light colored. In *S. ciliatum*, however, they are conspicuously winged, and in *S. rostratum* they are black and not much compressed. Since neither of the species has juicy, bird-dispersed berries, the distinctive seed morphology is probably correlated with other modes of dispersal.

The prevailing chromosome base number in the genus *Solanum* and its close relatives is $x = 12$. Polyploidy is commonly reported in sects. *Solanum* and *Petota* but is infrequent in other groups. The aneuploid reports of $x = 11$ in *Solanum mammosum* and the hexaploid report of $x = 36$ in *S. dimidiatum* are therefore both of interest.

KEY No. 1. Key to Florida species, not based on characters of fruit. * Plants not now known in the wild in Florida.

- 1 Anthers not opening by terminal pores, extended into sterile tips; flowers yellowish, mostly 6–9-merous; seeds pilose 32. *Ln. esculentum*
- 1' Anthers opening by terminal pores, without sterile tips; flowers various colors, mostly 5-merous; seeds glabrous.
 - 2 Mature plants mostly stellate pubescent.
 - 3 Inflorescence a condensed cyme held above the leaves by a straight, erect, apically branched peduncle; leaves all entire; anthers not or only slightly thicker in the lower half; unarmed shrubs or trees.
 - 4 Flowers purple; new growth with stipule-like minor leaves at the base of the petioles; pedicels deciduous near the middle 15. *S. mauritianum*
 - 4' Flowers white; stipule-like minor leaves absent; pedicels deciduous near the base.
 - 5 Pedicels stout, 2–5 mm long; anthers ca. 3 mm long; ovary stellate-tomentose 10. *S. erianthum*
 - 5' Pedicels slender, 5–8 mm long; anthers 4–5 mm long; ovary with a few simple hairs 8. *S. donianum*
 - 3' Inflorescence not as above; leaves subentire or variously lobed; anthers much thicker in the lower half; plants often armed, their habit various.
 - 6 Calyx accrescent and enveloping the fruit, at least when young; leaves dissected; plants copiously spiny.
 - 7 Calyx persistent and tightly enveloping the mature fruit; seeds black; anthers strongly unequal.
 - 8 Flowers yellow; pubescence eglandular, of stellate hairs 22. *S. rostratum*
 - 8' Flowers purple; pubescence glandular, stellate hairs few or absent 5. *S. citrullifolium**
 - 7' Calyx loosely enveloping the fruit and splitting at maturity; seeds yellowish; anthers equal 24. *S. sisymbriifolium*
 - 6' Calyx not enveloping the fruit; leaves mostly not dissected; spines various.
 - 9 Anthers sessile, the tips curved outwards; flowers in a tight, short-stalked cluster on the stem 20. *S. pseudolulo**
 - 9' Stamens with filaments, the anther tips not curved outwards; inflorescence various.
 - 10 Anther tube pubescent inside; corolla lobed to the base, the lobes linear lanceolate.
 - 11 Flowers white; anthers more than 6 mm long; leaves mostly more than 8 cm long, the tips sharply pointed 21. *S. racemosum*

- 11' Flowers purple or mauve; anthers mostly less than 7 mm long; leaves mostly less than 12 cm long, the tips blunt ---- 2. *S. bahamense*
- 12 Inflorescence several branched; midpoints of stellate hairs conspicuous to the naked eye (extinct element) ----- 2c. *S. bahamense* var. *rugelii**
- 12' Inflorescence unbranched; midpoints of stellate hairs wanting or visible only with a lens.
- 13 Flowers deep colored; some stellate hairs of the inflorescence with midpoints as long as the arms; leaves mostly more than 2.5 cm wide ----- 2b. *S. bahamense* var. *luxurians*
- 13' Flowers pale colored; stellate hairs with no midpoints as long as the arms; leaves mostly less than 2.5 cm wide -- 2a. *S. bahamense* var. *bahamense*
- 10' Anthers glabrous; corolla lobes mostly broader.
- 14 Anthers strongly unequal ----- 26. *S. tridynamum**
- 14' Anthers equal.
- 15 Stems with stout, recurving spines.
- 16 Leaves petiolate; calyx without bristles; peduncle once-branched; tree or shrub ----- 25. *S. torvum*
- 16' Leaves sessile, basally cuneate; calyx with bristles; peduncle unbranched, woody vine ----- 12. *S. jamaicense*
- 15' Stems with straight spines or none.
- 17 Anthers more than 12 mm long; flowers more than 5 cm across, fading with age; pedicel scars peltate, ca. 2 mm across ----- 30. *S. wrightii**
- 17' Anthers less than 10 mm long; flowers less than 5 cm across, not fading with age; pedicel scars sessile, inconspicuous.
- 18 Leaves lobed to near the middle with narrow lobes ----- 3b. *S. carolinense* var. *floridanum*
- 18' Leaves lobed less than halfway to the middle.
- 19 Leaves lanceolate, mostly less than 2 cm wide, silvery pubescent with both scutellate and stellate hairs --- 9. *S. elaeagnifolium*
- 19' Leaves ovate or elliptical, mostly more than 2 cm wide, not silvery pubescent, scutellate hairs absent.
- 20 Ovary stellate pubescent on top; plants mostly few- (to 5-) flowered; leaf lobes rounded --- 16. *S. melongena**
- 20' Ovary glabrous or with a few simple hairs; plants several- (4-or more) flowered; leaf lobes rounded or acute.
- 21 Filaments ca. 1.5 mm long; anthers 6-8 mm long; corolla 2-3.5 cm across; peduncle seldom branched; leaf lobes acute ----- 3a. *S. carolinense*

- 21' Filaments 2–4 mm long; anthers 8–12 mm long; corolla 3–4 cm across; peduncle branched; leaf lobes obtuse or rounded
----- 6. *S. dimidiatum*
- 2' Mature plants with mostly simple or branched hairs or glabrous, stellate hairs rarely present.
- 22 Plants spiny; anthers much thicker in the lower half.
- 23 Leaf undersides with hook-like spines; glabrous vines --- 29. *S. wendlandii**
- 23' Leaves and stems with acicular spines; erect or sprawling pubescent herbs.
- 24 Calyx enveloping the fruit; leaves finely dissected --- 5. *S. citrullifolium**
- 24' Calyx not enveloping the fruit; leaves lobed but not dissected.
- 25 Corolla 14–20 mm across; anthers ca. 6 mm long; leaves glabrate except for sparse coarse hairs on the surface and margins ----- 4. *S. ciliatum*
- 25' Corolla 30–40 mm across; anthers ca. 10 mm long; leaves copiously viscid-villous ----- 14. *S. mammosum**
- 22' Plants unarmed (pointed enations of the stem sometimes present); anthers little thicker in the lower half.
- 26 Calyx truncate, not splitting at the sutures, the teeth or umbos small or wanting; plants glabrate.
- 27 Inflorescence a 1- to few-flowered fascicle; leaves entire ----- 31. *Ls. rantonnei**
- 27' Inflorescence an open panicle; leaves lobed or entire.
- 28 Calyx teeth obtuse, small but distinct, and splitting at the sutures ----- 13. *S. jasminoides*
- 28' Calyx teeth acute, small, not splitting at the sutures.
- 29 Leaves mostly deeply lobed, the margins not indurated ----- 23. *S. seafortianum*
- 29' Leaves entire, the margins indurated ----- 11. *S. glaucophyllum**
- 26' Calyx with distinct lobes splitting at the sutures; plants pubescent to glabrous.
- 30 Leaves pinnate or deeply pinnate-lobed, scandent species.
- 31 Plants viscid-pubescent; pedicels articulated about half-way up ----- 27. *S. tuberosum*
- 31' Plants glabrate; pedicels articulated almost at the base ----- 13. *S. jasminoides*
- 30' Leaves toothed or entire but not divided below the middle; pedicels articulated at the base or not at all.
- 32 Inflorescence an open panicle; leaves lanceolate; the margins indurated ----- 11. *S. glaucophyllum**
- 32' Inflorescence not a panicle; leaves mostly ovate, the margins not indurated.
- 33 Sterile portion of the peduncle as long as the pedicels, the inflorescence a sub-umbellate raceme; herbs ----- sect. *Solanum*
- 34 Anthers less than 1.7 mm long.
- 35 Plants copiously and persistently pubescent overall with short, erect hairs ----- 28. *S. villosum**
- 35' Plants sparingly pubescent with appressed hairs ----- 1a. *S. americanum*
- 34' Anthers more than 1.7 mm long.
- 36 Pedicels and peduncles remaining slender.

- 37 Internodes nearly as long as the leaves;
leaves narrow 1b. *S. americanum* var. *baylisii*
- 37' Internodes shorter than the leaves;
leaves broader 17. *S. nigrescens*
- 36' Pedicels and peduncles becoming stout 18. *S. nigrum*
- 33' Sterile portion of the peduncle much shorter than the
pedicels, or wanting.
- 38 Leaves narrow; peduncles 1-3-flowered, without
out a conspicuous cicatrix; anthers more than 2.4
mm long 19. *S. pseudocapsicum*
- 38' Leaves ovate or elliptic; peduncles several- to
many-flowered, developing a conspicuous cicatrix;
anthers less than 2.4 mm long 7. *S. diphyllum*

KEY No. 2. Key to Florida species, based on fruit in living state. * Taxa not
now known in the wild in Florida.

- 1 Not known to fruit in Florida *Is. rantonnei*
..... *S. bahamense* var. *rugelii*
..... *S. glaucophyllum*
..... *S. villosum*
..... *S. wendlandii*
..... *S. wrightii*
- 1' Known to fruit in Florida.
- 2 Fruit enveloped at least until near maturity by the spiny calyx.
- 3 Fruiting calyx with stellate hairs 22. *S. rostratum*
- 3' Fruiting calyx with simple hairs 5. *S. citrullifolium*
- 2' Fruit not enveloped by the calyx.
- 4 Fruits stellate-pubescent.
- 5 Fruits less than 15 mm across, yellow.
- 6 Fruits held above the foliage; pedicels stout; calyx teeth deltoid with-
out filiform tips.
- 7 Pedicels articulating near the base 10. *S. erianthum*
- 7' Pedicels articulating near the middle 15. *S. mauritianum*
- 6' Fruits not held above the foliage; pedicels not stout; calyx teeth with
filiform tips 9. *S. elaeagnifolium*
- 5' Fruits more than 25 mm across, red or orange 20. *S. pseudolulo*
- 4' Fruits glabrous.
- 8 Fruits pendulous in a much branched panicle.
- 9 Fruits less than 12 mm long; receptacle surmounted by a circular or
5-angled annular calyx 23. *S. seafortianum*
- 9' Fruits more than 12 mm long; receptacle surmounted by 2-4 rem-
nants of calyx teeth 13. *S. jasminoides*
- 8' Fruits not pendulous in a much branched panicle.
- 10 Pedicels articulating near the middle 27. *S. tuberosum*
- 10' Pedicels not articulating near the middle.
- 11 Pericarp moist but not juicy, thick and white or green.
- 12 Fruit red, not shiny; pericarp white, less than 4 mm thick
..... 4. *S. ciliatum*
- 12' Fruit not red, sometimes shiny; pericarp white or green,
mostly more than 4 mm thick.
- 13 Pericarp hard, green; endocarp stony 6. *S. dimidiatum*
- 13' Pericarp soft, white; endocarp not evident.
- 14 Fruit yellow, often appendaged, spongy ma-
terial absent adaxial to the seeds
..... 14. *S. mammosum*

- 14' Fruit black, or variously colored, seldom pure yellow, not appendaged, spongy material both abaxial and adaxial to the seeds -----
- 16. *S. melongena*
- 11' Pericarp juicy, mostly thin and colored as the fruit wall.
- 15 Fruits red or orange.
- 16 Fruits held above the leaves in a branched cyme -----
- 8. *S. donianum*
- 16' Fruits not held above the leaves, not in a cyme.
- 17 Pedicels slender, nodding; fruits less than 9 mm in diameter.
- 18 Fruits shiny, scarlet ----- 21. *S. racemosum*
- 2b. *S. bahamense* var. *luxurians*
- 18' Fruits shiny, orange -----
- 2a. *S. bahamense* var. *bahamense*
- 18'' Fruits dull, orange or beige ----- 7. *S. diphyllum*
- 17' Pedicels stouter, not nodding; fruit of various size.
- 19 Fruits more than 12 mm across -----
- 19. *S. pseudocapsicum*
- 19' Fruits less than 12 mm across.
- 20 Calyx teeth filiform, calyx tomentose -----
- 12. *S. jamaicense*
- 20' Calyx glabrate, teeth deltoid -----
- 24. *S. sisymbriifolium*
- 15' Fruits not red or orange.
- 21 Fruits black.
- 22 Fruit shiny, held erect, seeds less than 12 mm across -----
- 1. *S. americanum*
- 22' Fruit dull, held downwards against the stem; seeds large or small.
- 23 Pedicels and peduncles heavy; seeds 1.8 mm or more across -----
- 18. *S. nigrum*
- 23' Pedicels and peduncles slender; seeds 1.8 mm or less across -----
- 17. *S. nigrescens*
- 21' Fruits not black, rarely dark brown in extreme age.
- 24 Fruit greenish or yellowish in part, mostly brown.
- 25 Calyx teeth overtopping the fruit -----
- 26. *S. tridynamum*
- 25' Calyx teeth shorter than the fruit -----
- 9. *S. elaeagnifolium*
- 24' Fruit yellow.
- 26 Pedicels with mostly simple, glandular hairs, filiform and dark colored -----
- 25. *S. torvum*
- 26' Pedicels stellate pubescent, not filiform or dark colored.
- 27 Calyx with sparse, yellowish, sessile, few-armed hairs -----
- 3. *S. carolinense*
- 27' Calyx with dense, white, many-armed and scutellate hairs -----
- 9. *S. elaeagnifolium*

1. ***Solanum americanum*** Mill., Gard. Dict., ed. 8. 1768. AUTHENTIC SPECIMENS: herb. Sloane 295 (BM).

1a. var. ***americanum***.

Solanum nodiflorum Jacq., Coll. 1: 100. 1788. Ic. Pl. Rar. 2: 17, t. 326. 1786. AUTHENTIC SPECIMEN: ex Jacquin, s.n. (BM; Bitter, Abh. Naturwiss. Vereine Bremen 23: 138. 1914, cited a specimen at w, not seen).

- Solanum triangulare* Lam., Illustr. 2: 18. 1794. TYPE: herb. Lamarck s.n. (P).
Solanum parviflorum Badaro, Giorn. Fis. dec. II 7: 364. 1824. TYPE: Badaro "1824" (G-DC).
Solanum subspathulatum Sendt. in Mart., Fl. Bras. 10: 45. 1846. TYPE: Brazil, Sello s.n. (P, ex hort. bot. Berol.).
Solanum indecorum A. Rich. in Sagra, Fl. Cuba 11: 121. 1850. TYPE: herb. Richard s.n. (P).
Solanum amaranthoides Dun. in DC., Prodr. 13(1): 55. 1852. TYPE: Brazil, Gaudichaud 552 (MPU, P-holotype).
Solanum caribaeum Dun. in DC., Prodr. 13(1): 48. 1852. LECTOTYPE: Jamaica, collector unknown (G-DC, ex Kew).
Solanum fistulosum Dun. in DC., Prodr. 13(1): 49. 1852. LECTOTYPE: Brazil, herb. Richard s.n. (P³).
Solanum inops Dun. in DC., Prodr. 13(1): 55. 1852. TYPE: Mexico, Berlandier 46 (G, G-DC-holotype, P).
Solanum nodiflorum var. *acuminatum* Dun. in DC., Prodr. 13(1): 46. 1852. LECTOTYPE: Brazil, Vauthier 537 (P, ex herb. Drake).
Solanum nodiflorum var. *macrophyllum* Dun. in DC., Prodr. 13(1): 46. 1852. LECTOTYPE: Brazil, Gaudichaud 521 (P).
Solanum nodiflorum var. *petiolastrum* Dun. in DC., Prodr. 13(1): 46. 1852. HOLOTYPE: Brazil, Claussen 180 (P).
Solanum nodiflorum var. *puberulum* Dun. in DC., Prodr. 13(1): 46. 1852. TYPE: Mexico, Berlandier 1904 (G-DC-lectotype, P).
Solanum oleraceum Dun. in DC., Prodr. 13(1): 50. 1852. TYPE: Cayenna, herb. Richard s.n. (G-DC-isolectotypes, MPU, P-lectotype).
Solanum ptychanthum Dun. in DC., Prodr. 13(1): 54. 1852. TYPE: Georgia, U.S.A., collector unknown (G-DC).
Solanum nigrum var. *nodiflorum* (Jacq.) A. Gray, Syn. Fl. N. Amer. 2(1): 288. 1878
Solanum nigrum var. *americanum* (Mill.) O. E. Schulz in Urb., Symb. Ant. 6: 160. 1909-10.
Solanum purpuratum Bitt., Fedde Rep. 13: 85. 1913. TYPE: Andros, Bahamas, Small & Carter 8805 (P-holotype, us-isotype).
Solanum adventitium Polgar, Magyar Botanikai Lapok 24: 18, t. 1. 1925. TYPE: Hungary, Polgar s.n. (MPU).
Solanum merillianum Liou, Contr. Inst. Bot. Natl. Acad. Peiping 3: 455. 1935. TYPE: Hainan, Tsang 412 (A).
Solanum photeinocarpum Nak. & Odash., Jour. Soc. Trop. Agr. 8: 54. 1836. TYPE: not seen (see Stebbins & Paddock, 1949).
Solanum americanum var. *nodiflorum* (Jacq.) Edmonds, Jour. Arnold Arbor. 52: 634. 1971.

Short lived or annual, unarmed *herb*, rarely to 1.5 m tall, glabrate or pubescent with simple hairs; stems terete to strongly angled, sometimes with tooth-like enations, green or purplish, not sarmentose. *Leaves* simple, small to large (2-20 cm long), mostly ovate, basally truncate or shallowly cuneate, the margins entire, undulate or dentate; minor leaves often present. *Inflorescence* lateral, several-flowered, umbellate or nearly so, the peduncle slender, unbranched, appressed pubescent; pedicels slender, appressed pubescent, deflexed in bud but erect and spreading in fruit. *Flowers* small, perfect, the calyx lobes deltoid to lanceolate, not accrescent; corolla white, blue or mauve, with or without a conspicuous eye, to 1 cm across; anthers 0.9-1.4(-2.1) mm long, stout, subequal; ovary glabrous, the style usually pubescent, mostly thicker in the middle. *Fruit* black, shiny, 4-8(-15) mm across, juicy; seeds 1.2-1.5 mm across. *Pollen*: 17-20 μ . *Chromosomes*: $n = 12$ (Edmonds, 1972; Baylis, 1958, as *S. nodiflorum*).

³ This specimen bears two labels. Although the label "Isle de France" is in Dunal's hand, the protologue refers also to the Richard label. The true source of this specimen is not evident.

Solanum americanum is distinct in its shiny, black berries, which are held erect at maturity, subtended by strongly recurved calyx lobes. The small anthers are another useful character. This species is quite variable in leaf shape, overall size and in pubescence, and a distinction between glabrate and pubescent varieties is not meaningful in Florida. *Solanum americanum* is known to hybridize with other diploid species in Florida, and intermediates, especially herbarium material, may be difficult to place. Meiotic chromosome counts were verified in this study using a variety of Florida material.

This is perhaps the commonest species of *Solanum* in the state, although it is rare in the panhandle. It is a conspicuous and unwanted invader of citrus fields in Central Florida where it grows to large size and luxuriant appearance. It is also perhaps the world's most widespread species of *Solanum*, occurring from Scandinavia to New Zealand and from sea level to over 3,000 m elevation in Central America.

The ripe berries of this species are apparently edible by humans, but there are cases on record of poisoning by unripe fruits and other green parts. "Black nightshade."

Representative specimens:

ALACHUA: Overgrown lot ca. 1 mi. S of Gainesville on Fla 441, *Burch* 677 (MO). Vacant lot, downtown Gainesville, *Heiser* 4044B (IND). Railroad S of Gainesville, *Murrill* 1937 (MO). Gainesville, *Murrill* 1939 (MO). BAY: Panama City, *Ahles* 10274 (UNC). BREVARD: Hammock along Indian River, *Small* 8712 (NY). CHARLOTTE: In weedy citrus field, Fla 865 7 mi. S of Punta Gorda, *D'Arcy* 1443 (FLAS). CITRUS: Beside American Legion beach, Crystal River, *D'Arcy* 1542 (BIRM, FLAS, MO). COLLIER: Ca. 14 mi. SE of Naples along old Marco Road, *Deam* 60788 (IND). Roadside near shallow swamp, land development E of Lake Trafford, *Long et al.* 2751 (USF). COLUMBIA: Lake City, *Pickel* 719 (FLAS). DADE: Infrequent by old rock pit in pineland, Silver Palm Drive and Naranja Road, W of Goulds, *Beckner* 1967 (BIRM, FLAS, MO, UCWI). Swale in dune near picnic area, Key Biscayne, *Gillis* 7677 (MO). Brickell Hammock, near US 1 and Rickenbacker Causeway, Miami, *Long & Andorfer* 2828 (MO, USF). DESOTO: In roadside lawn S of Arcadia, *D'Arcy* 1424 (FLAS). DIXIE: Beside public boat ramp W of Jena, Steinhatchee River, *D'Arcy* 1525 (FLAS). ESCAMBIA: Beside culvert, US 98 at bridge over Pensacola Bay, *D'Arcy* 2506 (BIRM, FLAS, MO). FRANKLIN: Empty lot in Eastpoint, *Kral* 1988 (FSU). GILCHRIST: Hammock along Santa Fe River, Fla 77, *West & Arnold*, 1943 (FLAS). GLADES: On Indian mounds, S side of Fisheating Creek, *D'Arcy* 1430 (FLAS). Open places W shore of Lake Okeechobee, Fisheating Creek to Three-Mile Canal, *Small* 8216 (MO). HARDEE: E bank of Peace River, N of Fla 64, W side of Zolfo Springs, *Ward* A-4 (FLAS, FSU). HENDRY: In city park, Clewiston, *Deam* 58627 (IND). HERNANDO: Orange grove 4.5 mi. N of Brooksville, *Godfrey* 57199 (FSU). HIGHLANDS: Along canal SW side of Highlands Hammock State Park ca. 7.5 mi. SW of Sebring, *Deam* 64104 (IND). HILLSBOROUGH: Moist location, Tampa, *Ferguson* 1898 (MO). Disturbed undergrowth, Northgate, Tampa, *Lakela & Almeda* 31345 (USF). Fencerow in pasture 7 mi. E of Tampa, *West*, 1949 (FLAS). HOLMES: US 90 under bridge over Choctawatchee River, *D'Arcy* 2567 (FLAS). INDIAN RIVER: Behind foredune, N limit of Indian River Shores, *D'Arcy* 2852 (FLAS, MO). Small fill island just S of Wabasso Island, in Indian River, *D'Arcy* 3002 (FLAS, MO). Sandy banks of canal near coast, *Demaree* 49402 (UNC). JACKSON: Behind food store, W side of Cottondale, US 90, *D'Arcy* 2569 (FLAS, MO). Blue Springs, *West & Arnold*, 1937 (FLAS). JEFFERSON: Wacissa, *Murrill*, 1942 (FLAS). LAKE: Citrus grove 8 mi. S of Clermont, *D'Arcy* 1337 (FLAS). LEE: Weed in field, Myers, *Hitchcock* 239 (F, MO, NY). Near Fort Myers, *Standley* 72 (MO). LEON: Bottomland, Tallahassee, *Godfrey* 57953 (FSU). Edge of parking lot across from Florida State University, Tallahassee, *Windler & Windler* 2731A, 2731B (both FLAS, MO). LEVY: Waste places, Cedar Key, *Godfrey* 52830 (DUKE, UNC). MADISON: Dried up pond, 14 mi. SE of Madison on Fla 53, *Mitchell* 226 (FSU). MANATEE: Bradenton, *Cuthbert* 1457 (FLAS). MONROE: In limestone at seaside, ca. 1 mi. E of Port Largo, Key Largo, *D'Arcy* 2244 (BIRM, FLAS, MO). Roadside, Pine Crest, *Moldenke* 867A (MO). Hammock, Big Pine Key, *Seibert* 1297 (MO).

Longboat Key, *Tracy* 6829 (MO). OKALOOSA: Fort Walton Beach, *D'Arcy* 2492 (FLAS, MO). Fort Walton Beach, *Ward* 6404 (FLAS, MO). ORANGE: Overgrown grove, 2.5 mi. E of Ocoee, *Gale* 151 (FLAS). PALM BEACH: Lantana Beach, *Heiser* 4669 (IND). PASCO: Citrus grove, Fla 41, 3 mi. E of US 75, 1 mi. E of Blanton, *Beckner* 1633 (FLAS). Margin of citrus grove, 10 mi. N of Pasco-Hillsborough line, *Wiggins* 19596 (FLAS). PINELLAS: Road to Lutz from Tarpon Springs, *Cooley* 5860 (USF). POLK: Near Fort Meade, *Jennings & Jennings* 1919 (USF). Near Lakeland, *McFarlin* 3920 (MICH). ST. JOHNS: Elkton, *Shinners* 18004 (SMU). ST. LUCIE: Ditch W of Fort Pierce, *Beckner* 2205 (FLAS). SANTA ROSA: Behind gas station, US 90 and Fla 87, ca. 4 mi. E of Milton, *D'Arcy* 2500 (BIRM, FLAS, MO). SEMINOLE: Altamonte Springs, *Schallert* 3103 (UNC). SUMPTER: 2 mi. W of Wildwood, *Ward* 4278 (FLAS). TAYLOR: W side of Perry, *D'Arcy* 2483 (FLAS, MO). Between Perry and Salem, *Heiser* 4028 (IND). VOLUSIA: Ormond, *Deam* 1636 (IND). WALTON: SW side of De Funiak Springs, *D'Arcy* 2565 (FLAS). WITHOUT LOCALITY: *Chapman s.n.* (MO). *Rugel* 44 (MO).

1b. *Solanum americanum* var. *baylisii* D'Arcy, var. nov. TYPE: Cultivated, New Zealand, *Momson*, 1953 (OTA-00419).—Differt varietate typice antheris longioribus, fructibus non nitidis, foliis dense albo-pubescentibus.

Solanum gracile sensu Baylis, Trans. Roy. Soc. New Zealand 85: 379. 1958, non Sendt. in Mart., Fl. Bras. 10: 13. 1846; nec Dun. in DC., Prodr. 13(1): 54. 1852; nec Small (1933).

This variety is distinct in its long internodes, generally white, conspicuous pubescence, deltoid rather than obtuse calyx nodes, and dull, downward deflected fruits. In most respects it is similar to *S. nigrescens*. Only one Florida collection clearly represents this taxon, but several collections from the same part of Central Florida which appear to be intermediate between this and typical var. *americanum* are taken as evidence that the closest relationship is with var. *americanum*.

Baylis (1958) reported a meiotic chromosome count of $n = 12$ for this taxon, and this count was confirmed using plants grown from New Zealand seeds. He also reported anthers 2.5–4 mm long.

The names *S. gracile* and *S. ottonis* Hylander have been used by some botanists for this taxon, but examination of type material showed these names to be synonymous with *S. nigrescens* Mart. & Gal.

HERNANDO: 1 mi. S of county line N of Chinsegut Hill, *Cooley & Eaton* 6666 (USF).

2. *Solanum bahamense* L., Sp. Pl. 188. 1753. TYPE: not seen. Based on *S. bahamense spinosum petalis angustis reflexis* Dill., Hort. Elth. 364, t. 271, fig. 350. 1736.

2a. var. *bahamense*.

Solanum lanceifolium Salisb., Prodr. 134. 1796, non Jacq., Ic. Pl. Rar. 2: 11, t. 329. 1787. TYPE: Based on *S. bahamense* L.

Solanum subarmatum Willd., Enum. Hort. Berol. 1: 240. 1809. TYPE: Bahamas, herb. Willd. 4414 (B, not seen; IDC 7440-7, 111. 9.; BM, "*Catesby* ex Bahamas").

Solanum bahamense var. *lanceolatum* Griseb., Flora 5: 440. 1861. ?TYPE: (specimen at K labelled as type). Grisebach cited herb. Sloane t. 145, fig. 3.

Solanum bahamense var. *subarmatum* (Willd.) O. E. Schulz in Urb., Symb. Ant. 6: 222. 1909–10.

Solanum racemosum sensu Britt. & Wilson, Bot. Porto Rico & Virgin Isl. 6: 169. 1926 pro maj. parte, non Vahl.

Armed or unarmed *tree* or *shrub* to 4 m tall; stems sometimes with yellow or orange acicular spines 4–5 mm long. *Leaves* simple, broadly lanceolate, mostly 5–12 cm long, subentire, often basally dimidiate, coriaceous, above scabrous with dispersed, sessile stellate hairs mostly lacking midpoints, the veins to 15 on each side of the midvein. *Inflorescence* lateral, an unbranched, secund raceme to 12 cm long, the pedicels 1 mm long in flower, ca. 2 cm long and lax in fruit, articulating at the base. *Flowers* elongate, the calyx in bud sub-truncate, splitting at the sinuses before anthesis to form acuminate lobes to 6 mm long; the corolla usually mauve, 10 mm long, split nearly to the base into ensiform, reflexed lobes; stamens equal forming a slender tube to 14 mm long, the filaments connate for most of their length (1–2 mm), anthers ca. 7 mm long, coherent by lateral grooves and dense, long-armed stellate hairs within the tube; ovary with a few short, glandular, simple hairs, enclosed by the filament tube. *Berry* scarlet to pale orange, 4–7 mm across, shiny, juicy; seeds 3–7 mm across, compressed. *Pollen*: 19.0–27.0 μ . *Chromosomes*: $2n = 24$ (Roe, 1967b).

Solanum bahamense is distinct in its mauve or purple flowers, orange or red fruits and racemose, cernuous inflorescences. It is closely related to *S. racemosum* Jacq. and to several other similar species in the West Indies.

In Florida the species is common on the Keys and other coastal areas of the south. "Canker Berry."

Representative specimens:

BROWARD: Sand dunes at Dania Beach, *Beckner* 1549 (FLAS, MO). Dune, Fort Lauderdale, *Davis*, 1933 (FLAS). In muck, edge of pineland, N of Floranada, *Fennell & Jones* 838 (A). Hammock, Hugh Taylor State Park, *Lakela* 29600 (USF). Lauderdale Beach, *Moldenke* 261 (MO). DADE: Crocodile Point, Everglades National Park, *Craighead* 1959 (FLAS, GH). In shelter of low dunes, NE corner of Key Biscayne, *D'Arcy* 2223 (ADW, C, FLAS, IJ, MO). Key Biscayne, *DeBoer* 36 (USF). Clearing in thicket, Key Biscayne, *Gillis* 7243 (MO). S of picnic area, Elliott Key, *Meagher & Utley* 312 (USF). Bull Key, opposite Lemon City, *Small* 620 (NY, US). Miami, *Tracy* 9254 (MO). Coastal hammock, Key Biscayne, *West* 1332 (USF). MARTIN: Tunney Estate, Hobe Sound, *Crevasse*, 1940 (FLAS). MONROE: West Summerland Key, *Aregood* 106, 161 (both USF). Loggerhead Key, Dry Tortugas, *Atwater* 14 (FLAS). Boca Chica Beach, Shark Key, *Barghoorn* 92 (USF). Edge of pinelands on spoil bank, Big Pine Key, *Brizecky & Stern* 218 (A, FLAS, US). Lignum Vitae Key, *Craighead* 1956 (USF). West Summerland Key, *D'Arcy* 3030 (FLAS, MO). Big Pine Key, *D'Arcy* 3031 (FLAS, MO). Ramrod Key, *D'Arcy* 3039 (FLAS, MO). Crawl Key, *D'Arcy* 3043 (FLAS, MO). In hammock, Little Torch Key, *D'Arcy* 3045 (FLAS, MO). Bahia Honda Key, *D'Arcy* 3121 (FLAS, MO, USF). Key West, *Farlow*, 1891 (USF). Infrequent, Marquesas Keys, *Lansing* 2130 (NY). Little Torch Key, *Long et al.* 2492 (USF). Beach strand area on Atlantic side of Bahia Honda Key, *Long et al.* 2617 (USF). Key West, *Palmer* 371 (MO). N end of Key Largo, *Webster & Samuel* 10228 (IJ). SE hammock, Big Pine Key, *Thorne* 15121 (FSU, IJ). PALM BEACH: Old field, Jupiter Island, *Cooley et al.* 4814 (GH, USF). Wooded roadsides and clearings near Palm Beach, *Curtiss* 5519 (FLAS, GH, MO). Crest of shore dunes, Boca Raton just N of Broward Co. line, *Lakela* 28271 (FLAS, USF). Hypoluxa Island, *Muenschner & Muenschner* 14093 (A, GH).

2b. var. **luxurians** D'Arcy, var. nov. TYPE: Key Largo, Florida, *D'Arcy* 2234 (FLAS-holotype, MO-isotype).

Differt a varietate typica corollis ostrinis saturatis vice lilacinarum pallidinarum, acinis miniatis, puniceis seu igneis vice aurantiacorum dilutorum, foliis latioribus majisque, plantis grandioribus, necnon inflorescentiis, pilis stellatis radio mediano producto sparsis copiosive instructis.

This variety is distinct in its deep blue-purple corollas, bright red fruits, broader and larger leaves, larger plants and the scattered to plentiful elongate midpoints on the stellate hairs of the inflorescence. It is restricted to Key Largo and neighboring islands in Florida. Plants of this variety maintain their identity as far west as Boca Chica Key, where most plants along the roadsides are var. *bahamense*. Each of the characters mentioned above may be found in some plants of the typical variety, but only in the Key Largo region do all characters occur together. Plants here are strikingly different in appearance from most *Solanum bahamense* of other areas. Plants of Palm Beach County, and some of those from the Bahamas, have similar leaves and resemble var. *luxurians* on the herbarium sheet, but they lack the hairs with long midpoints. Similar long midpoints are found on two related species of the Antilles, *S. drymophyllum* O. E. Schulz (Puerto Rico) and *S. polyacanthos* Lam. (Hispaniola), as well as on var. *rugelii* of Florida. Mitotic chromosomes of this variety were counted by J. Semple as $2n = 24$ using root tips from seed of *Austin 4364* (MO).

Representative specimens:

BROWARD-PALM BEACH: Coastal hammocks between Fort Lauderdale and Palm Beach, *Rehder 847* (A). DADE: Hammock on coral rock, Totten Key, *Cooley 9350* (FSU, USF). Miami, *Garber 1877* (US). Elliott Key, *Meagher & Utley 312* (USF). Hammocks, Miami, *Small & Wilson 1904* (US). Ca. 2 mi. below N end of Elliott Key, *Ward & Ward 1583* (MO). MONROE: Key Largo, *Austin 4364* (MO). Roadside, N Key Largo, *Brizickey & Stern 546* (FLAS). North Key Largo, *Cooley 9286* (USF). Thicket ca. 100 m from the sea, Key Largo, *D'Arcy 2234* (FLAS, IJ, MO, MPU). Borders of hammock, Boca Chica Key, *Godfrey 58147* (FSU). Rock Harbor, Key Largo, *Janish & Janish 487* (MO). Rocky coastal strand and hammock, North Key Largo, *Lakela et al. 31776* (USF). North Key Largo, *Long et al. 1763, 1765* (both USF). Newport, Key Largo, *Pollard et al. 173* (US). N end of Key Largo, *Thorne 15133* (US, USF).

2c. var. *rugelii* D'Arcy, var. nov. TYPE: Key West, Florida, *Rugel s.n.* (MO).

Solanum radula sensu Chapman, Fl. S. United States 348. 1860, non Vahl.

Differt inflorescentia ramosa, floribus parvis, pilis stellatis radio medianao producto copiosis instructis.

Three collections from the first half of the last century have strikingly branched inflorescences, smaller flowers and copious stellate hairs with elongate midpoints. Their appearance is suggestive of some pathological condition, but they may represent an element of the Florida flora extinguished when the dense tropical hammock was removed from Key West early in this century.

MONROE: Key West, *Blodgett* (NY). WITHOUT LOCALITY: *Chapman* (NY). *Rugel 7* (MO, US).

3. *Solanum carolinense* L., Sp. Pl. 187. 1753. TYPE: herb. Linn. 246-37. (LINN).

3a. var. *carolinense*.

Solanum caule aculeato fruticoso . . . Clayton "ex herb. Gronovius," Hort. Cliff 61 (BM). *Solanum pleei* Dun. in DC., Prodr. 13(1): 305. 1852. TYPE: United States, *Pleé 204* (MPU, "ex herb. mus. Paris").

Solanum carolinense var. *pohlianum* Dun. in DC., Prodr. 13(1): 305. 1852. TYPE: Brazil, *Dr. Pohl s.n.* (M).

Solanum occidentale Dun. in DC., Prodr. 13(1): 309. 1852. TYPE: Southwest America, collector unknown (MPU, "ex herb. Lambert 1819").

Usually armed, erect or spreading woody perennial to 60 cm tall; stem green or purplish, pubescent, mostly with yellow or orange acicular spines to 1 cm long; rhizomes with cylindrical tubers 4–10 mm thick and to 10 cm long. *Leaves* simple, to 15 cm long, elliptical to lanceolate, the margins entire or sinuate, rarely pinnatisect, the lobes 2–5 on each side, apically obtuse, above with inconspicuous, dispersed, sessile, pauciradiate stellate hairs, beneath with more abundant, sometimes short-stalked hairs, both sides mostly with spines on the major veins. *Inflorescence* lateral, an unbranched, secund raceme, the pedicels 5–10 mm long, articulating tardily at the base; the first flowers staminate; calyx 3–5 mm long in flower, 4–7 mm in fruit, lobed about $\frac{1}{3}$ way down, mostly spiney; corolla mauve, blue or white, 2–3.5 cm across, lobed halfway down, the lobes deltoid; stamens connivent or separate, equal, the filaments stout, 1.5 mm long, the anthers 6–11 mm long, glabrous, elongate and tapering with small pores; ovary and style with sparse glandular simple hairs, the style of fertile flowers exerted, those of staminate flowers equalling the filaments. *Berry* ripening through white and green-mottled to yellow, 1–1.5 cm across, mucilaginous; seeds 2.5 mm across, compressed. *Pollen*: 25.0–29.0 μ . *Chromosomes*: $n = 12$ (D'Arcy 1969).

This species is distinct in its sarmentose, herbaceous aspect, its mostly sinuate, spiny leaves, deltoid corolla lobes, blue, mauve or white flowers and usually greenish fruits.

Solanum carolinense is one of the commonest species of *Solanum* in Florida, although it is less common in the south. It grows in shade or sun, in disturbed woodlands, pastures, beside culverts and around dwellings, and frequently performs as a noxious weed.

This species is probably native to the southeastern United States but has been reported from California, Idaho, Ontario, Haiti, and Brazil. In typical and other varieties, flowers may vary in color, and recognition of the forma *albiflorum* (O. Kuntze) Benke is of little utility and no taxonomic significance. In addition to the two varieties considered here, a var. *hirsuta* (Nutt.) D'Arcy⁴ occurs in Georgia. This has long, shaggy pubescence and is not known from collections in this century, hence having some analogy with *S. bahamense* var. *rugelii*. Although there is a tendency to longer and denser pubescence as one moves west from the Atlantic coast to Missouri, *S. carolinense* is remarkably uniform throughout its range.

Solanum carolinense is reportedly poisonous to livestock, and the tubers contain crystals of calcium oxalate (Metcalf & Chalk, 1950) and must be regarded as poisonous to humans. "Horse-nettle."

Representative specimens:

ALACHUA: Roadside by concrete bridge over Prairie Creek, Fla 234, D'Arcy 1579 (FLAS, MO). 2 mi. W of Gainesville, D'Arcy 1640 (FLAS, MO). Burnett's Lake, Watson & Murrill, 1939 (FLAS, GA, US). BAY: 3 mi. E of Lynn Haven along Fla 390, Beckner et al. 1499 (FLAS, MO).

⁴ *Solanum carolinense* var. *hirsuta* (Nutt.) D'Arcy, nom. nov. Based on *Solanum hirsutum* Nutt., Jour. Acad. Nat. Sci. Philadelphia 7: 109. 1834; non Dun. Hist. Soc. 158. 1813; nec. Roxb., Hort. Beng. 17. 1813 [1814]. TYPE: Milledgeville, Georgia, Boykin (PHILA).—The only other collection seen of this taxon is from Columbus, Georgia, Boykin (NY), of the same era.

CALHOUN: Swamp along Stafford Creek 5 mi. N of Blountstown, *Ford* 3387 (FLAS). CITRUS: Scrub near Lake Tsala Apopka, Inverness, *West & Arnold*, 1941 (FLAS). CLAY: Doctor's Inlet, *D'Arcy* 12134 (MO). Doctor's Inlet, *Murrill*, 1939 (MO), 1941 (FLAS). COLUMBIA: Moist roadside along US 441 ca. 7 mi. S of Lake City, *Ward* 3550 (FLAS). DADE: Without locality, *Moldenke*, 1930 (BUS). DUVAL: Jacksonville, *Barnhart* 2002 (NY). Near Jacksonville, *Curtiss* 4400 (MO). ESCAMBIA: Roadside, Pensacola, *Brinker* 17 (MO). US 90 at bridge over Bayou Texar, Pensacola, *D'Arcy* 2502 (FLAS). GADSDEN: River flats, Chatahoochee, *West*, 1931 (FLAS). HERNANDO: Richland, *McFarlin* 5957 (MICH). HOLMES: Around abandoned houses, W side of Ponce de Leon, *D'Arcy* 2566 (FLAS, MO). JACKSON: Disturbed area on bluffs, W side of Apalachicola River by US 90, *D'Arcy* 2572 (FLAS, MO). Chipola River, *Knight*, 1940 (FLAS). Dry field, Marianna, *Moldenke* 8360 (MO). JEFFERSON: Without locality, *Hitchcock*, 1898 (MO). Monticello, *Nolen* 1928 (FLAS). LAFAYETTE: Suwannee River opposite Branford, *West & Arnold*, 1941 (FLAS). LAKE: Near Eustis, *Nash* 928 (GH, MO). LEON: Tallahassee, *Rolfs* 178 (FLAS, MO). LIBERTY: Picnic ground, Torreya State Park, *West & Arnold*, 1940 (FLAS). MADISON: N shore of Lotus Lake, Greenville, *Beckner* 1884 (FLAS). OKALOOSA: Garbage dump, Fort Walton Beach, *D'Arcy* 1495 (FLAS, MO). Sandy roadsides, Niceville, *Godfrey* 56652 (FSU, GH). OKEECHOBEE: Near lake, Okeechobee City, *Moldenke* 5432 (NY). PUTNAM: Palatka, *Hood*, 1940 (FLAS, MO). ST. JOHNS: Pineland N of E Palatka, *Godfrey* 52635 (FSU). SANTA ROSA: Edges of cultivated land W of Allentown, *Ford* 4160 (FLAS). SEMINOLE: Sanford, *Scudder* 01 (FLAS). VOLUSIA: Beside culvert 1.5 mi. N of Brevard County Line, *D'Arcy* 1628 (FLAS). WALTON: Near Eucheanna Church SE of De Funiak Springs, *West & Arnold*, 1954 (FLAS, GH). WASHINGTON: Under Dickenson Bridge over Choctawatchee River, W side of Caryville, *D'Arcy* 2568 (FLAS, MO). Choctawatchee River W of Caryville, *Godfrey* 60780 (FSU).

3a. *Solanum carolinense* var. *floridanum* Chapm., Fl. S. United States 349. 1860. TYPE: Florida, *Rugel* 1843 (G-DC-holotype; isotypes K, MO, MPU, NY).

Solanum floridanum Shuttlw. ex Dun. in DC., Prodr. 13(1): 306. 1852, non Raf., Aut. Bot. 107. 1840.

Solanum godfreyi Shinnars, Sida 1: 108. 1962. TYPE: Florida, *Godfrey* 60037 (FSU, SMU).

This variety is distinguished by the deep lobing of its leaves. Usually, intermediates may be found between this variety and the typical within the same colony (see *D'Arcy*, 1970b). Some herbarium sheets are suggestive of *S. sisymbriifolium*, but that species has an accrescent calyx and red fruits.

Variety *floridanum* is restricted to north Florida and neighboring Georgia and is most commonly found between the Suwannee and Apalachicola Rivers and along the St. Johns River. It is found in habitats much like those of the typical variety with perhaps a tendency to grow in slightly moister sites.

The chromosome number found in this species is $n = 12$ (*D'Arcy*, 1969).

Representative specimens:

GEORGIA: LOWNDES: Dry wayside adjoining railroad tracks along Ga 84, 2.5 mi. W of Valdosta, *Krysiak*, 1970 (MO, left-hand specimen only). FLORIDA: CLAY: W side of Doctor's Inlet, *D'Arcy* 1212A (FLAS). Doctor's Inlet, *Murrill*, 1939 (FLAS). DUVAL: South Jacksonville, *Churchill*, 1897 (MO). Vacant lot, University and Santa Monica Boulevards, South Jacksonville, *Creager* 476 (FLAS). Dry roadsides near Jacksonville, *Curtiss* 4845 (US). Without locality, *Fredholm* 5211 (GH). FLAGLER: Haw Creek near Deanville, *West*, 1942 (FLAS). FRANKLIN: Apalachicola, *Chapman* s.n. (MO). GADSDEN: Quincy, *Foster* 25 (FLAS). HERNANDO: Brooksville, *Phillips et al.*, 1938 (BUS). LEVY: Yankeetown, *Jarrish & Jarrish* 348 (MO). Gulf Hammock near Wekiva River, *West & Arnold*, 1937 (DUKE, FLAS). PUTNAM: Canal bank E of East Palatka, *West & Arnold*, 1940 (FLAS). ST. JOHNS: Roadsides and waste places, *Reynolds*, 1877 (MO). St. Augustine, *Reynolds*, 1878 (FLAS, MO). Fla 214, 5.2 mi. E of Toco, *Ward* 2100 (FLAS). 1.8 mi. N of Switzerland, *Wilmot & Murrill*, 1941 (FLAS). TAYLOR: Clearings of swampy woodland near Nuttal's Rise along Aucilla River, *Godfrey* 60037 (FSU, SMU). Roadside near low hammock, Aucilla Wildlife Management Area, *McDaniel* 4297 (FSU, UNC). WAKULLA: Bean patch in Newport, *D'Arcy* 2484 (ADW, FLAS, MO). Moist clearing of deciduous

woodland, Wakulla, *Godfrey* 56815 (FSU, GH, SMU). Moist shady soil bordering marshes, St. Marks, *Godfrey* 59554 (FSU). In apricis prope St. Marks, *Rugel* 1843 (G-DC, K, MO, MPU, NY). Sandy roadside to St. Marks lighthouse, *Trott* 154 (FSU, GH).

4. ***Solanum ciliatum*** Lam., *Illustr.* 2: 21. 1793 [1794]. TYPE: herb. Lamarck s.n. (P; photo IJ).

Solanum aculeatissimum sensu Britt. & Millsp., *Bahama Fl.* 382. 1920, Small, *Man. South-eastern Fl.* 1114. 1933; Backer & Bakhuizen, *Fl. Java* 2: 472, 474. 1965; Corr. & Johnst., *Man. Vasc. Pl. Texas* 1398. 1970; Long & Lakela, *Fl. Trop. Florida* 757. 1971, non Jacq., *Coll.* 1: 100. 1786.

Solanum pentapetaloides Roxb. ex Hornem., *Hort. Hafn. Supp.* 27. 1819. Based on *S. pentapetaloides* Roxb., *Hort. Bengal* 17. 1814, nomen nudum. TYPE: *Roxburgh* s.n. (P-Lam.).

Solanum ciliatum var. *arenarium* Dun. in DC., *Prodr.* 13(1): 242. 1852. LECTOTYPE: Brazil, *Gaudichaud* 473, 1836 (MPU ex G-DC).

Copiously armed, erect or spreading perennial *herb* to 80 cm; stems green or purplish, sparingly pilose with long simple hairs and armed with flattened, green, yellow or orange acicular spines to 15 mm long; sometimes spreading by rhizomes. *Leaves* broadly ovate or orbicular to 14 cm long, the margins sinuate to pinnatifid, apically acute to rounded, basally rounded to cordate, sparsely pilose above, glabrate beneath, manifestly ciliate on the margins with long simple hairs, armed with green spines on the veins above and beneath; petiole 2–5 cm long, mostly armed. *Inflorescence* lateral, few flowered, a congested cincinnus elongating in fruit, the first flowers staminate; pedicels 1 cm long, hispid with short, glandular simple hairs, sometimes armed, almost white in flower; calyx often spiny, 2–3 mm long, slightly accrescent, lobed $\frac{2}{3}$ way down; corolla white, 14–20 mm across, deeply lobed, the lobes lanceolate; stamens equal, the filaments 1.5–2 mm long, glabrous, the anthers ca. 6 mm long, connivent or separate, elongate, narrowly conical with minute pores; ovary and style glabrous, style of perfect flowers exerted, those of staminate flowers equalling the filaments. *Fruit* 1.5–5 cm across, bright, matte orange-red, the pericarp white, fleshy, 1–2 mm thick, later drying chartaceous, locules moist or dry but without wet pulp; seeds flat, winged, 2–3 mm across (4.5–5.5 mm including wings), yellow. *Pollen*: 24.0–30.5 μ , irregular in size.

This species has been confused with *S. aculeatissimum* Jacq., which differs from *S. ciliatum* in a number of respects: the fruit is somewhat smaller and matures yellow, the seeds are not winged and are much smaller, the leaves are of a more symmetrical shape with smaller, sharper teeth or lobes, and the pubescence comprises dense, fine, glandular and eglandular simple hairs, scattered stellate hairs and larger, apparently simple hairs like those of *S. ciliatum*. *Solanum aculeatissimum* was lectotypified by a specimen at Vienna (see D'Arcy, 1970a). The two species appear to be distinct in range. Plants resembling *S. aculeatissimum* have been seen only from southern Africa, Mexico, and Paraguay, while almost all plants of this group seen from the Southeastern United States, from the Antilles and from Asia have been *S. ciliatum*. In South and Central America other closely related species occur and *S. ciliatum* is found only locally.

In Florida, *S. ciliatum* occurs in pastures, road shoulders and other disturbed habitats, usually in partial shade and most commonly in areas of former hardwood forest. *Solanum ciliatum* is plentiful in Central and North Florida, uncommon in the south and rare in the panhandle.

In various parts of the world this species is occasionally grown as an ornamental or curiosity, and in parts of tropical America it is used as a roach poison, attracting the common name "mata cucaracha." In the United States it is sometimes called a "cockroach berry." Its toxicity to humans is not known; the spiness may prevent ingestion by livestock.

Representative specimens:

ALACHUA: Weed in yard, S edge of Gainesville, *Carmaichael*, 1965 (FLAS). BREVARD: Waste ground, Okeechobee region, *Fredholm* 5894 (GH). CHARLOTTE: Without locality, *Parrott* 176 (DUKE). CITRUS: Along Withlacoochee River ca. 1.5 mi. E of Pineola, *Kral* 1879 (FSU). CLAY: Hibernia, *Canby* 1869 (GH). COLLIER: Cypress sloughs, Sunniland, *Craighead*, 1965 (USF). DADE: North Cross Hammock, Key Biscayne, *McAllister* 263 (DUKE). DIXIE: Under oak trees in town of Horseshoe Beach, *D'Arcy* 1524 (FLAS, MO). DUVAL: Without locality, *Fredholm* 5235 (GH). FLAGLER: Swamp on Crescent Lake at St. Johns Park, *West*, 1942 (FLAS). FRANKLIN: Waste places Apalachicola, *Herb. Chapman* 3441b (NY, US). GLADES: Along Fla 78 3 mi. SW of Kissimmee River, *Ward* 1140 (FLAS). HAMILTON: 5 mi. NE of White Springs, *West*, 1946 (FLAS). HARDEE: In high hammock, Wauchula, *O'Neill* 1929 (FLAS). HENDRY: Devil's Garden Hammock, *Cooley* 772 (USF). HERNANDO: In orange grove 4.5 mi. N of Brooksville, *Godfrey* 57453 (FSU, GH). 2.5 mi. E of Brooksville, *Cooley* 5497 (GH, USF). HIGHLANDS: Highlands Hammock county road, Sebring, *McFarlin* 8070 (FLAS). HILLSBOROUGH: Sand barrens, Hillsboro River at the "Dam," Tampa, *Churchill*, 1923 (GH). INDIAN RIVER: Sebastian, *Rhoades*, 1935 (GH). LAKE: Waste places, near Eustis, *Nash*, 1894 (GH). LEE: Weed in waste places, Fort Meyers, *Hitchcock* 240 (GH). LEVY: Gulf Hammock, *Watson & Murrill*, 1939 (FLAS). MARION: MacIntosh, *Miller* 485 (US). OKEECHOBEE: 3 mi. N of Okeechobee, *West*, 1946 (FLAS). ORANGE: Vacant yard, Orlo Vista, *West*, 1929 (FLAS). OSCEOLA: Swamp 7 mi. S of St. Cloud, *Cooley* 1036 (USF). PALM BEACH: Sandy roadside, 15 mi. W of Jupiter and 6 mi. S of Indiantown, *Atwater* 562 (FLAS). PASCO: Hammock along ravine, Fla 41, 1 mi. E of US 75, 2 mi. W of Blanton, *Beckner* 1642 (FLAS). PINELLAS: Dunedin, *Tracy* 6834 (GH). POLK: 3 mi. E of Edwards Shores, S end of Lake Marion, *Conard*, 1964 (FLAS). PUTNAM: Moist open woodland along shores of Crescent Lake at Crescent City, *Godfrey* 56905 (FSU, GH). ST. LUCIE: Pine barren, Fort Pierce, *Hunnewell* 7449 (GH). SEMINOLE: Ca. 3 mi. N of Oviedo off Fla 419, *Ray* 10868 (USF). SUMPTER: On limestone pile, US 75 ca. 1 mi. N of Hernando County line, *D'Arcy* 2294 (FLAS). VOLUSIA: Hammock, Oak Hill, *Rhoades*, 1936 (FLAS).

5. *Solanum citrullifolium* A. Br., Ann. Sci. Nat. Bot., Sér. 3. 12: 356. 1849.

TYPE: *A. Braun* 201 (MO, ex Hort. Freiburg 1849).

Spiny herb, stems viscid with simple glandular hairs and copiously armed with acicular yellow spines to 6(-10) mm long. Leaves to 13 cm long, 1-2-pinnatifid, both sides with glandular simple hairs and with spines on the veins beneath with occasional stellate hairs; petiole sometimes as long as the lamina. Inflorescences terminal, later lateral, few flowered, the peduncle as long as the petioles, the pedicels becoming 10-12 mm long in fruit; calyx with lanceolate lobes ca. 5 mm long, in fruit densely spiny, accrescent and enveloping the fruit; corolla blue, 25-30 mm across; stamens unequal, the anthers attenuate with small pores, the longest 13 mm long, the 4 others 7 mm long; the style arcuate, long exserted. Fruit enclosed in the persistent accrescent calyx, ca. 8 mm across.

This species is similar and related to *S. rostratum*, which differs in its copious,

eglandular, stellate pubescence, the coarser dissection of its leaves and its purple flower. Although first described from a plant in a European garden, *S. citrullifolium* is a native of Mexico. It is a rare adventive in Florida. To judge from label information, it was deliberately introduced for study by workers at the University of Florida, subsequently escaped, but did not persist in the state.

ALACHUA: Escape, Gainesville, *Murrill*, May 1939; June 1939 (both MO).

6. *Solanum dimidiatum* Raf., Aut. Bot. 8: 107. 1840, non Sendt. in Mart., Fl. Bras. 10: 1846. TYPE: not seen.

Solanum platyphyllum sensu Engelm. & Torr., Ann. Lyc. New York 2: 227. 1828, non Dun., Sol. Syn. 38. 1816.

Solanum mammosum sensu Engelm. & Gray, Boston Jour. Nat. Hist. 5: 254. 1845, non L.

Solanum ——— Torr. & Gray in Pope, Rep. Pacific R.R. Surv. 2: 172. 1854. Refers to *S. mammosum* Engelm. & Gray, non L.

Solanum torreyi A. Gray, Proc. Amer. Acad. 6: 44. 1862. TYPE: Texas, *Lindheimer* 281 (A-lectotype; isoelectotypes BM, K, LL, MO, P, SMU).

Solanum perplexum Small, Man. S.E. Fl. 1115, 1508. 1933. TYPE: Georgia, *Small* 1895 (NY).

Sparingly armed, sarmentose *herb* to 50 cm tall; young stems somewhat angled, tomentose with stalked, many-armed stellae bearing long midpoints, mostly with straight slender spines of various colors. *Leaves* mostly 8–12 cm long, ovate, sinuate lobed, the lobes and sinuses mostly rounded, above with dispersed sessile stellate hairs, beneath tomentose with sessile few-armed hairs, the veins often with spines to 10 mm long; petioles 1–4 cm long, often spiny. *Inflorescence* lateral, an erect, branched, several flowered panicle, the pedicels 1–3 cm long. *Flowers* showy, calyx 4–7 mm long, unarmed, deeply lobed, the lobes subulate tipped; corolla deep mauve or blue, 3–4 cm across, lobed less than $\frac{1}{3}$ way down, the lobes deltoid; stamens connivent or separate, equal, the filaments 2–4 mm long, glabrous, the anthers 6–8 mm long, elongate and tapering, opening by small pores and tardily by longitudinal slits; ovary with minute, curved, glandular simple hairs, style basally pubescent, apically flattened and broadened. *Fruit* yellow, 1–3 cm across, not juicy, the pericarp thick, green, very hard, the endocarp forming a lignified capsule-like enclosure compressing the 6–12 maturing seeds; seeds twisted-lenticular. *Pollen*: 25.0–30.0 μ . *Chromosomes*: $n = 36 \pm 1$ (D'Arcy, 1969).

This species is distinct in its showy, deep-colored flowers and large, hard yellow fruits. It is apparently closely related on the one hand to *S. carolinense* and on the other hand to *S. melongena*, both species which may be found throughout the range of *S. dimidiatum*.

Solanum dimidiatum ranges from Texas and Oklahoma to Georgia and Florida. In Florida it occurs in scattered colonies on the red hills in the Tallahassee area and in single colonies in Gilchrist and Alachua Counties further south. In these sites it grows in disturbed habitats of former hardwood forest. The Gilchrist County population dominates about 30 acres of cornfield and pasture and is a noxious plague to the landowners. Here most reproduction is by underground runners, although farmers report volunteer seedlings in cut hay. The Alachua

County colony consists of a few plants along a sandy road where it persists in spite of road grading and sometimes extended drought. Little fruit is set here, in part due to damage by the ash-grey blister beetle (*Epicauta fabricia* (LeConte)), which feeds heavily on the flowers.

The species is interesting because of its reported chromosome numbers. The Gilchrist and Alachua County colonies referred to above have the haploid number $n = 36 \pm 1$ (D'Arcy, 1969), one of the first reports of polyploidy in the spiny, stellate-pubescent subgenus *Stellatipilum*. Hardin *et al.* (1972) reported $n = 18$ for a population in Oklahoma, and LaCour (1952) reported $2n = 24$ (as *S. torreyi*). Vouchers for the LaCour count are not known. The fruit of this species is also interesting, displaying signs of sterility. Instead of a mucilaginous fruit like the similar *S. carolinense* or a fleshy, soft fruit like *S. melongena*, this species has a hard, almost woody pericarp enclosing a stony endocarp. Fewer than 12 (sometimes no) seeds are produced, twisted and packed by constraint of the stony endocarp, but the inside of the carpel wall is sprinkled with pepper-like aborted ovules.

ALACHUA: Sandy road shoulder, dirt road between Fla 24 and Fla 26, 1 mi. W of US 75, D'Arcy 1587 (FLAS). Old Rocky Point near Gainesville, West & Arnold, 1937 (DUKE). GILCHRIST: Ca. 2 mi. W of Bell on Fla 341, D'Arcy 2477 (FLAS, MO). JACKSON: Without locality, Chapman (NY). JEFFERSON: Monticello, Nolen 1968 (FLAS). LEON: Tallahassee, Godfrey 53226 (DUKE, FSU, GA, NY, SMU). Edge of thicket, Tallahassee, Moldenke 1118 (MO). Apalachicola National Forest 10 mi. S of Tallahassee, Redfern 350-2-55 (FSU). WAKULLA: Edge of farm field 3 mi. S of Crawfordsville, Kral 4711 (FSU, SMU). In pinetis prope St. Marks, Rugel 1843 (NY). Fla. 376, 0.3 mi. E of US 98, Wooten 272 (FSU).

7. ***Solanum diphyllum* L.**, Sp. Pl. 184. 1753. TYPE: ?Patrick Browne, herb. Linn. 248.5 (LINN).

Glabrate, unarmed, erect *shrub* 1(-3) m tall; stems green, angled; twigs sparingly puberulent with appressed simple hairs. *Leaves* elliptic, to 12 cm long, apically acute or acuminate, basally narrowed or short acuminate, the margins entire, glabrous except occasionally minutely puberulent along the major veins beneath; minor leaves orbicular, to 6 cm long. *Inflorescence* opposite the leaves, a short, congested cincinnus with a prominent cicatrix of pedicel scars; pedicels filiform, 8-12 mm long, pendant in fruit; calyx 1.2 mm long, slightly accrescent, deeply deltoid lobed; corolla white, 5-7 mm across, deeply lobed, the lobes lanceolate or obtuse, stamens equal, the filaments glabrous, the anthers 2 mm long, stout with large pores; ovary glabrous. *Fruit* 8 mm across, dull beige, yellow or orange, at maturity globose but 2-lobed by an apical sulcus before maturity; seeds compressed, 2-3 mm across. *Pollen*: 14.0-16.5 μ . *Chromosomes*: $n = 12$ (D'Arcy, 1969).

A native of Mexico, this species has been confused with other similar species of tropical America. It is usually completely glabrous, but some specimens bear minute trichomes on the leaf undersides which give an appearance of roughness rather than puberulence.

Solanum diphyllum is occasionally cultivated throughout the state as an outdoor foliage shrub and is sometimes spontaneous.

ALACHUA: Gainesville, *Beckner* 1970 (MO); *D'Arcy* 3500 (FLAS, MO). HILLSBOROUGH: Open area, University of South Florida Botanical Gardens, Tampa, *Burch* 4053 (USF). ORANGE: Orlando, *Burch & Silverman* 3715 (USF). Near Orland, *Maxwell* 1970 (USF).

8. ***Solanum donianum*** Walp., Rep. Bot. Syst. 3: 54. 1844. TYPE: Based on *S. bahamense* Mill.

Solanum bahamense Mill., Gard. Dict., ed. 8. 1768, non L. TYPE: Based on *S. frutescens tomentosum flore albo* . . . Houst. mss.

Solanum stenorchis Dun. in DC., Prodr. 13(1): 270. 1852. TYPE: Based on *S. bahamense* Mill.

Solanum blodgettii Chapm., Fl. S. United States 349. 1860. TYPE: Key West, *Blodgett* s.n. (NY).

Solanum bahamense var. *subarmatum* sensu O. E. Schulz in Urb., Symb. Ant. 6: 223. 1909–10 pro parte, non Willd. Citation of *Curtiss* 2199 (C, M).

Solanum decurtatum Standl. & Steyerl., Publ. Field Mus. Nat. Hist., Bot. Ser. 23: 20. 1943. TYPE: Mexico, *Lundell* 2012, not seen, fide Gentry and Standley (1974: 107).

[*Solanum frutescens tomentosum flore albo umbellato fructu parvo rubro* Houst. mss. TYPE: *Houston* s.n. (BM).]

Small tree or shrub to 3 m tall; juvenile stems with small, weak acicular spines, but plants otherwise unarmed; twigs articulating at the base, tomentose with stalked and sessile many-armed stellate hairs. Leaves 4–15 cm long, ovate, obovate or elliptic, entire, above with dispersed few- and many-armed stellate hairs, beneath with dense, stalked, many-armed hairs standing on papillae. Inflorescence lateral, an erect panicle or cyme, the tomentose, 5–8-mm-long pedicels articulating at the base leaving elevated scars; calyx 1–5 mm long, tomentose, truncate in bud, splitting into oblong, short acuminate lobes; corolla white, 6–11 mm across, deeply lobed, the lobes lanceolate and short acuminate apically; stamens equal, the glabrous filaments 1–2 mm long, the anthers connivent, 4–5 mm long, elongate, attenuate, opening by small pores, often drying dark; ovary with few short, glandular simple hairs. Berry globose or faintly 2-lobed, 4–7 mm across, shiny and red or rarely orange, overripe berries sometimes blackening (on the Lower Keys) apically with an umbonate stylar scar; seeds compressed, 2–3 mm across. Pollen: 25.0–29.0 μ . Chromosomes: $n = 12$ (Roe, 1967b, as *S. blodgettii*).

This species is often confused in the herbarium with *Solanum bahamense* from which it differs in many respects. The erect, branched inflorescence and the leaf undersides, tomentose with stalked, many-armed stellate hairs which stand on papillae arising from the leaf surface, are good distinctions. The flowers are always white, whereas in *S. bahamense* they are purplish or bluish. The structure of the hairs and the basal articulation of the twigs are unusual features.

This species grows in South Florida in full sun, usually on limestone. It is especially plentiful on the Lower Keys where it forms dense hedges ca. 1 m tall. *Solanum donianum* ranges from the Bahamas through the Florida Keys to the Yucatan and British Honduras.

Schulz's error in considering this species under *S. bahamense subarmatum* was discussed by N. L. Britton (1912). *Solanum bombense* Jacq. (Enum. Pl. Carib. 15. 1763) was described from Isla Tierra Bomba off Cartagena, Colombia, but has not been noted since. A type for this name has not been located, but there is at least a remote possibility that it applies to this Florida taxon.

Roe (1966, 1967a) discussed removal of this species from sect. *Brevantherum* where it was considered by Small (1933, as '*Verbascifolia*'). The relationships of *S. donianum* are obscure but may be with *S. punctulatum* Dun. of Jamaica which has scattered hairs on the leaves. It is clearly a member of subgenus *Leptostemonum*. "Blodgett's potato."

Representative specimens:

COLLIER: Plentiful along berm, Fla 29, ca. 1 mi. S of US 41, N of Everglades, *D'Arcy* 2253 (FLAS, MO). South end of Big Cypress Swamp, *Jennings*, 1929 (USF). Marco Island, S of Marco Pass, *Lakela* 29834 (USF). DADE: 4 mi. E of Homestead, *Godfrey* 58124 (FSU). Royal Palm Hammock, *Hunnewell* 5774 (A). In crevices of Miami oolite, SW of Homestead, *Lakela* 26751 (USF). Edge of hammock S of Florida City, *Moldenke* 748 (MO). In swamp, West Lake, *O'Neill* 1929 (FLAS). Everglades, Camp Jackson to Camp Longview, *Small*, 1911 (FLAS). LEE: Hammock about Deep Lake, *Small* 9933 (A). MONROE: Limestone near inner edge of mangroves, Big Pine Key, *Conroy* 161 (MO, FAU). US 1, Ramrod Key, *D'Arcy* 3034 (MO). Buttonwood Head, Flamingo, *Eaton* 1338 (A). Marly salt flats, Flamingo, *Godfrey* 63369 (FLAS, FSU). Disturbed hammock edge and pinelands, Sugarloaf Key, *Long* 2498 (USF). Key West, *Palmer* 370 (MO); *Rugel* 133 (MO). Hammocks, Key West, *Small* 3754 (MO). Hammocks, Big Pine Key, *Small* & *Mosier* (BUS).

9. *Solanum elaeagnifolium* Cav., Icon. Pl. 3: 22, t. 243, p. 115. 1795. TYPE: *Cavanilles s.n.* (C, MA, P-JUSS.).

Solanum leprosum Ort., Hort. Matr. Dec. 9: 115. 1800. TYPE: Chile, collector unknown (MPU ex hort. Matrit.).

Solanum obtusifolium Dun., Sol. Syn. 26. 1816. TYPE: Mexico, *Bonpland* (?P, not seen).

Solanum flavidum Torr., Ann. Lycium New York 2: 227. 1828. TYPE: Western United States, *James* 309 (NY).

Solanum texense Engelm. & Gray, Boston Jour. Nat. Hist. 5: 227. 1845. TYPE: Texas, *Lindheimer* 135 [= *Drummond* 200] (K, MO).

Solanum roemerianum Scheele, Linnaea 21: 767. 1848. TYPE: not seen; ? = *S. undatum* Roemer.

Solanum elaeagnifolium var. *leprosum* (Ort.) Dun. in DC., Prodr. 13(1): 291. 1852.

Solanum elaeagnifolium var. *obtusifolium* (Dun.) Dun. in DC., Prodr. 13(1): 291. 1852.

[*Solanum undatum* Roemer, ined., non Lam. TYPE: "ex herb. Roem." (BM)].

Greyish, often armed, erect or sprawling herb to 60 cm tall; stems scaly, often with orange or blackening, 2–5-mm-long, acicular spines; twigs with dense, subsessile scutellate-stellate hairs; long propagating rhizomes present. *Leaves* narrow, 1–10 cm long, sometimes spiny, the margins entire, sinuate or rarely pinatifid, blue-green above with dispersed to dense subsessile scutellate hairs, beneath silvery with stalked and sessile stellate hairs. *Inflorescence* lateral or terminal, a mostly unbranched raceme or cincinnus; the pedicels congested in flower, 0.4–2.5 cm long, mostly spiny, pubescent, sometimes articulating at the base; calyx often spiny, 3–5 mm long, tomentose, splitting to form oblong lobes with filiform-subulate apices; corolla blue, violet or rarely white, ca. 3 cm across with a broad limb and deltoid lobes; stamens equal, the filaments 1–2 mm long, glabrous, the anthers 6–8 mm long, attenuate with small pores; ovary tomentose, the arms of the stellate hairs long and pointed upwards, the style with glandular, simple hairs. *Berry* globose, 1–1.5 cm across, dirty to bright yellow, sometimes persisting with viable seed for several years; seeds 3–4 mm across, flat to lenticular and irregular in outline within the same berry. *Pollen*: 27.0–31.0 μ . *Chromosomes*: $n = 12$ (Averett & Powell, 1972).

The greyish, scaly surface and showy flowers distinguish this species from all other Florida members of the genus except perhaps *S. tridynamum*, which has much broader leaves and strongly unequal anthers.

Solanum elaeagnifolium has long been a street weed on Key West but is otherwise rare in the state. It is native to the southwestern United States and northern Mexico and perhaps also to temperate South America. It is reported from across the southern United States and from the islands of the Caribbean.

Significant livestock losses have been reported in Texas from poisoning by this plant (Kingsbury, 1954). "White Horse-Nettle."

ALACHUA: Roadside, Gainesville, *Hartman*, 1944 (FLAS). DADE: Pasture, Miami, *Steffani*, 1945 (FLAS). ESCAMBIA: Waste ground, Pensacola, *Curtiss* 5913 (F, FLAS, GA, GH, K, MO, UNC). MONROE: Key West, *Avery*, 1964 (FLAS). Key West, *Buswell*, 1937 (BUS). Key West, *D'Arcy* 3024 (MO). Key West, *Small & Small* 4949 (MO). ORANGE: Winter Park, *Hayward*, 1938 (MO).

10. ***Solanum erianthum*** D. Don, Prodr. Fl. Nepal 96. 1825. TYPE: *Nepal*, herb. Wallich 2616c (κ).

Solanum racemosum Mill., Gard. Dict., ed. 8. 1768, non Jacq. TYPE: *Houston s.n.* (BM, right-hand specimen).

Solanum verbascifolium var. *adulterinum* G. Don, Gen. Syst. 4: 415. 1838. TYPE: herb. Wallich 2616h (κ).

Solanum erianthum var. *adulterinum* (G. Don) Baker & Simmonds in Williams, Fl. Trinidad & Tobago 2(4): 264. 1953.

White-tomentose, unarmed *shrub* or *tree* to 10 m tall; twigs with stalked and sessile dendritic-echinoid and echinoid hairs. *Leaves* entire, to 20 cm long, ovate, felty tomentose with stalked echinoid stellate hairs. *Inflorescence* an erect, long-stalked many-flowered cyme, the pedicels stout, tomentose, 2–5 mm long, articulating nearly at the base; calyx 7–9 mm long in flower, slightly accrescent in fruit, tomentose, lobed halfway down with subequal deltoid lobes; corolla white, deeply lobed, ca. 1.5 cm across, the lobes broadly lanceolate; stamens subequal, the filaments 2 mm long, glabrous, narrowing upwards, the anthers 3 mm long, stout with large pores and ultimately with longitudinal slits; ovary stellate-tomentose, the style sparsely pubescent. *Berry* globose, 7–12 mm across, sparingly pubescent with mostly sessile echinoid hairs, dull yellow but seldom seen ripe, mucilaginous within; seeds slightly compressed, 1.5–2 mm across. *Pollen*: 16.0–19.5 μ . *Chromosomes*: $n = 12$ (Roe, 1967b).

This species is easily recognized by its large, felty leaves and cymes of white flowers. Closely related to *S. mauritianum*, it differs in its white rather than blue flowers and in its globose flower buds.

Solanum erianthum is a plentiful species in South Florida, growing on road shoulders, hammock edges and in old fields. Very large (to 12-m-tall) trees occur along the Tamiami Trail, Collier County. Occasional collections have been taken in Central Florida as far north as Polk, St. Johns, and Volusia Counties. This species is plentiful in the Caribbean area but is repalced by other species in South America. It is widespread in the Old World tropics.

This species was long known as *Solanum verbascifolium*, but Roe (1968) has shown *S. erianthum* to be the correct name. The type of *S. verbascifolium* L.

(LINN 248.1) is a close relative of *S. hartwegii* Benth. or *S. hispidum* Pers., both spiny Mexican shrubs not closely related to *S. erianthum*.

Pollen of this species is usually 3-colporate, but *Curtiss* 5456 is an exception. Pollen was examined from all sheets except that at Kew (κ), and it was in tetrads, $28\ \mu$ across. No other features of this collection seem in any way unusual. "Potato tree."

Representative specimens:

BROWARD: Canal bank near Andytown, *Burch* 59 (MO). DADE: Dry hammock, Old Cutler Road ca. 15 mi. S of Miami, *Burch* 42 (MO). Dry Rocky soil, Miami, *Hood*, 1910 (MO). INDIAN RIVER: Indian River, *Reynolds* 11564 (MO). MARTIN: Roadside between Canal Point and Okeechobee, *Gaiser et al.*, 1945 (FLAS). MONROE: Rocky pineapple field, Key Largo, *Curtiss* 5456 (A, FLAS, K, MO, NY). Hammock clearings, Key Largo, *Godfrey* 53815 (FSU). Edges of mangrove swamp, 2.6 mi. N of Flamingo, *Godfrey* 63386 (FSU, UNC). Key Largo, *Janish & Janish* 493 (MO). Key West, *Rugel* 8, 216 (both MO). Pinelands, Big Pine Key, *Small & Small* 5019 (MO). Edge of *Lysiloma* hammock, Pinecrest, 4 mi. W of Dade County line, *Ward* 3311 (FLAS, UNC). Long Key, *Weber & Hawkins*, 1928 (FLAS). OKEECHOBEE: Low thicket, Okeechobee City, *Burger & West*, 1927 (FLAS). Roadside, Okeechobee City, *Moldenke* 246 (MO). POLK: Lake Alfred, *McFarlin* 5223 (MICH). PUTNAM: Esperanza, *Donnell Smith*, 1879 (US). ST. JOHNS: Picolata, *Canby*, 1858 (DUKE). ST. LUCIE: Road shoulder in mangrove swamp, 11 mi. S of N end of Hutchinson Island, *Beckner* 2237 (FLAS). SARASOTA: Osprey, *Smith*, 1901 (DUKE). VOLUSIA: Hammock W of Allandale, *West*, 1942 (FLAS).

11. *Solanum glaucophyllum* Desf., Cat. Pl. Hort. Par. 114: 396. 1829. TYPE: not seen.

Solanum angustifolium Lam., Illustr. 2: 18. 1797, non Mill., Gard. Dict., ed. 8. 1768. TYPE: not seen.

Solanum malocoxylon Sendt. in Mart., Fl. Bras. 10: 51. 1846. TYPE: not seen.

Solanum amygdalilifolium Steud. ex Sendt. in Mart., Fl. Bras. 10: 51. 1846. TYPE: not seen.

Solanum glaucum Dun. in DC., Prodr. 13(1): 100. 1852. LECTOTYPE: Argentina, *Baclé* 43 (G-DC); syntype *Gaudichaud* 1833 (P "ex h. imp. Bras. 1748").

Unarmed, glabrate, glaucous, paludal *shrub* to 2 m tall. *Leaves* narrow, 9–13 cm long and 1–2 cm wide, long acuminate at each end, sessile and slightly clasping the stem. *Inflorescences* numerous, terminal and lateral, several-flowered, racemes to 10 cm long, mostly unbranched; the calyx with short-deltoid teeth, splitting at the sinuses to form minutely ciliate lobes ca. 3 mm long; the corolla blue, 2–3 cm across, the lobes short and the limb broad; stamens equal, filaments ca. 1 mm long, glabrous, the anthers 3–6 mm long, stout with large pores and ultimately with longitudinal slits; the ovary glabrous. *Berry* 7–10 mm across, apiculate. *Chromosomes*: $2n = 24$ (Gerasimenko & Reznikova, 1968, as *S. glaucum*).

This species is distinctive in its narrow, thick, glabrous and somewhat glaucous leaves, and in the blue corollas which are glabrous except for a band of fine simple hairs outside near the margins.

A native of Argentina, this species is known in Florida from only two collections taken many years ago. Perhaps it was introduced with ships' ballast and has not persisted. It grows in paludal waste places. It causes a sometimes fatal disease of livestock known as *Enteque seco* or "dry weakness," and the vitamin D-like effects of its toxic principle were recently reported (Wasserman, 1974).

Use of this name is based on a specimen labelled "*S. glaucophyllum* Hort.

Paris Cat. Ann. 1829, p. 396" (MPU), which may be from the type collection, and on specimens labelled *S. glaucum* Dun. (G) but annotated as *S. glaucophyllum* by Georg Bitter. Material labelled *S. malocoxylon* and *S. angustifolium* Lam. (both G) was similarly annotated as *S. glaucophyllum*. In each case, the protologue agrees with the present concept of the species. Dunal in his original publication of *S. glaucum* cited an *S. glaucophyllum* Hort.

ESCAMBIA: Pensacola, 1899 *Curtiss* 6500 (GH). Pensacola, 1901 *Curtiss* 6862 (G-DC, GA, GH, MO, US).

12. ***Solanum jamaicense*** Mill., Gard. Dict., ed. 8. 1768. TYPE: *Houston*, Sloane Cat. 107 (BM).

Solanum brevopilum Dun., Hist. Sol. 193, t. 2. 1813. TYPE: ?St. Thomas, *Riedlé s.n.* (MPU).

Solanum cuneifolium Dun., Hist. Sol. 193, t. 22. 1813. TYPE: not seen.

Solanum heterotrichum Dun., Hist. Sol. 192, t. 20. 1813. TYPE: fragment "Dun. 1813" (MPU).

Solanum brevipilosum Dun. in DC., Prodr. 13(1): 199. 1852. LECTOTYPE: Brazil, *Salzman* 384 (G-DC).

Solanum portoricense Dun. in DC., Prodr. 13(1): 374. 1852. TYPE: Porto Rico, *Riedlé s.n.* (B-W, not seen; IDC 7440. 301: II. 4).

Tomentose, armed, erect or scandent *shrub* to 3 m tall; stems tomentose with slightly ochraceous, stalked, many-armed stellate or dendritic hairs, armed with stout-based, ca. 5-mm-long recurved spines. *Leaves* thick and felty, 4–15 cm long, broad, mostly angular sinuate, basally acute or acuminate and subsessile, both sides tomentose, sometimes spiny. *Inflorescence* lateral, a short, congested raceme, the peduncle pubescent, the pedicels 2 cm long, villous; flowers small, the calyx 4 mm long with narrowly lanceolate lobes extending halfway down and bearing prominent dendritic or stellate bristles; corolla white, 8–11 mm across, lobed halfway down; stamens equal, the filaments very short (0.2 mm long), glabrous, the anthers 3–4 mm long, attenuate with large pores and sometimes ultimately longitudinal slits. *Berry* 5 mm across, globose, shiny red; seeds lenticular, orange, 1.5–2 mm across. *Chromosomes*: $n = 12$ (Heiser, 1956).

The triangular, subsessile leaf bases distinguish this species, as do the inconspicuous white flowers, bright red fruits and recurved spines.

Rare in Central Florida, this species ranges through the Antilles, Central America, and tropical South America, in some places becoming a noxious weed.

ORANGE: Cypress swamp near Boggy Creek settlement 6 mi. SE of Taft, *Nicholson* 103 (US).

OSCEOLA: East Lake, *McFarlin* 5901 (MICH). Near St. Cloud, *Mulvania*, 1903 (NY).

13. ***Solanum jasminoides*** Paxt., Mag. Bot. 8, t. 5. 1841. TYPE: not seen.

Glabrate, unarmed climbing *vine*, rooting by runners. *Leaves* both entire and basally lobed on the same plant, 3–4 cm long, membranaceous; petioles 1–2 cm long. *Inflorescence* an open, many-flowered panicle, the pedicels ca. 1 mm long abscissing just above the base; calyx apically ciliate with umbonate teeth, later splitting briefly into 2-mm-long lobes; corolla mostly bluish white, 2 cm across, lobed $\frac{2}{3}$ way down, the lobes narrowly obtuse with a prominently angled mid-vein, stamens subequal and alike, the filaments 1 mm long, villous within, the

anthers 4 mm long, stout with large pores and longitudinal slits; ovary glabrous, the style glandular-villous in the lower half. *Chromosomes*: $n = 12$ (Gerasimenko & Reznikova, 1968).

LEON: Cultivated, Tallahassee, Reese & Godfrey (USF).

14. *Solanum mammosum* L., Sp. Pl. 187. 1753. TYPE: not seen.

Villous armed *herb* or *shrub* to 1.5 m tall; stems and twigs viscid-villous with long simple hairs, armed with yellow or green acicular spines which in age become flattened, recurved, woody, 2.5 cm long; stems fistulose. *Leaves* 6–20 cm long, broadly ovate, angular-lobed, basally truncate to cordate, both sides villous with long, simple glandular hairs, short-stalked glands and sessile, long-radiate stellae with ascending radii, armed with flattened acicular spines to 3 cm long; petioles 5–7 cm long, sparingly armed. *Inflorescence* lateral, a short, several-flowered raceme, the pedicels 5–12 mm long, becoming stout and somewhat longer in fruit; calyx unarmed, deeply lobed, the lobes 3–6 mm long, lanceolate; corolla violet, 3–4 cm across, lobed about halfway down; stamens equal, the filaments very short, the anthers 10–12 mm long, slender and tapering with small pores, ovary and style glabrous. *Fruit* orange or yellow, 4–7 cm long, ovoid, often with one or more 2-cm-long, rounded protrusions at the base and a nipple-like contraction at the apex; seeds compressed-lenticular, not winged, dark brown, 5–7 mm across. *Chromosomes*: $n = 12$ (Bell, 1965); 11 (Madhavadian, 1968; Heiser, 1971).

This species has fruit like no other species of *Solanum*. The glandular villous pubescence is composed of reduced stellate hairs in which the radii are fused with the leaf lamina and the mid-point remains as an apparently simple hair. The nature of this hair may be seen in seedlings. Similar hairs occur in *S. ciliatum*, but they are not so dense and are less commonly glandular.

Solanum mammosum is occasionally cultivated in Florida as a curiosity. The species is a native of tropical America where it is sometimes cultivated for medicinal properties or for reputed insecticidal properties. "Nipple fruit," "pig's ears."

15. *Solanum mauritianum* Scop., Delic. Insub. 3: 16, t. 8. 1788. TYPE: not seen.

Solanum auriculatum Ait., Hort. Kew, ed. 1. 1: 246. 1789. TYPE: not seen.

Foetid, tomentose, unarmed *tree* to 12 m tall, the pubescence white (Florida); twigs with long-stalked dendritic-echinoid and echinoid hairs; wood white, brittle. *Leaves* entire, to 60 cm long, ovate, felty tomentose, basally oblique, above shiny with subsessile, sub-echinoid stellate hairs, beneath tomentose with long-stalked sub-echinoid and echinoid hairs; minor leaves sessile, rounded, sometimes paired, deciduous. *Inflorescence* an erect, sometimes long-stalked many flowered cyme, the pedicels stout, tomentose, 2–5 mm long, longer in fruit, articulating at the middle or just below; calyx 3–4 mm long, slightly accrescent in fruit, lobed half-way down with subequal deltoid lobes; corolla deep blue-purple, 5–8 mm across,

the lobes broadly lanceolate; stamens subequal, the filaments 1.5–2 mm long, glabrous, the anthers 3 mm long, stout with large pores and longitudinal slits; ovary stellate-tomentose, the style basally pubescent. *Berry* globose, ca. 10 mm across, dirty yellow, hispid, mucilaginous; seeds lenticular, 2 mm across. *Pollen*: 19.0–27.0 μ , quite irregular. *Chromosomes*: $n = 12$ (Krishnappa, 1968, as *S. auriculatum*).

This species is similar to *S. erianthum* but differs in its larger size, prominent but deciduous minor leaves, blue flowers, and strong odor. It is known in only one Florida locality, a subtropical ravine ca. 1 km long which contains a lush growth of many naturalized exotic species in Pasco County. Fertilizer leached from flanking citrus groves probably encourages growth, and trees of *S. mauritianum* here reach 12 m height.

Solanum mauritianum is a native of Uruguay (Roe, 1972) but has become widespread, occurring as a weed tree in the Old World tropics and in New Zealand. In the Florida plants, pollen is irregular and seed germination less than 10 per cent. "Ear-leaved nightshade."

The name *Solanum mauritianum* is based on plants grown in Italy from seed originating on Mauritius but obtained from a French source. Material of this species was grown at about the same time in England and Paris, and all may have been from the same stock. While type specimens cannot be located, the identity of *S. mauritianum* and *S. auriculatum* is clear from the description and plates supporting each name.

PASCO: Rim of ravine just W of Blanton on Fla 41 ca. 2 mi. E of US 75, *Beckner 1616* (FLAS). Naturalized in ravine flanked by citrus groves, Fla 41 2 mi. W of Blanton, *D'Arcy 1648* (FLAS, MO, US, WIS).

16. ***Solanum melongena* L., Sp. Pl. 186. 1753. TYPE: herb. Linn. 248.28 (LINN).**

Solanum esculentum Dun., Hist. Sol. 208. 1813. TYPE: Based on *S. melongena* L.

Erect, tomentose, sometimes armed perennial *herb* to 60 cm tall; twigs tomentose with whitish, stalked and sessile stellate hairs, glabrescent, sometimes with straight or curved stout spines. *Leaves* to 25 cm long, ovate, pinnatifid-lobed to entire, the margins mostly sinuate, above pubescent with mostly sessile stellate hairs, beneath tomentose; petioles to 6 cm long. *Inflorescence* a short, few-flowered raceme, the first flowers functionally staminate, a few later flowers perfect; pedicels 1–2 cm long, tomentose, sometimes articulating near the base, longer and much stouter in fruit; calyx ca. 12 mm long, lobed about halfway down, the lobes lanceolate, accrescent and splitting irregularly in fruit; corolla mauve, 3.5–5 cm across, lobed halfway down, the lobes deltoid to acute; stamens equal, the filaments 3–4 mm long, narrowing upwards, the anthers ca. 6 mm long, stout and attenuate with small pores, ovary tomentose apically, glabrescent, the style tomentose in the lower half. *Fruit* very large, to 40 cm long, ellipsoidal or ovoid with a moist fleshy pulp, purple-black (Florida), ultimately turning yellow, rose, green or brown; seeds compressed. *Pollen*: 26.5–33.0 μ , mixture of 3- and 4-colporate grains. *Chromosomes*: $n = 12$ (Carpinin *et al.* 1963).

This species is distinctive in its large fruit with a moist pulp several cm thick.

A substantial acreage is devoted to this crop in various parts of the state, and the species is rarely cultivated for ornament. Ornamental plants may develop corollas 5 cm across. No escapes have been seen, and it is not known to winter over. *Solanum melongena* is a native of the Old World, perhaps India. "Egg plant."

Many synonyms have been published for this species, but the above noted name is the only such synonym which has gained (erroneous) currency.

HILLSBOROUGH: Cultivated, Tampa, *Burch & Chevalier* 3708 (USF). Cultivated, University of South Florida Botanical Garden, Tampa, *Burch* 6452 (USF).

17. *Solanum nigrescens* Mart. & Gal., Bull. Acad. Roy. Bruxelles 12(1): 140. 1845. TYPE: *Galeotti* 1238 (P).

Solanum aloysiaefolium Dun. in DC., Prodr. 13(1): 73. 1852. HOLOTYPE: Bolivia, *d'Orbigny* 1208 (P).

Solanum crenato-dentatum Dun. in DC., Prodr. 13(1): 54. 1852. LECTOTYPE: San Fernando, Chile, *Gay*, s.n. (P). PARATYPE: Mexico, *Berlandier* 118 (G).

Solanum crenato-dentatum var. *ramosissimum* Dun. in DC., Prodr. 13(1): 54. 1852. TYPE: Louisiana, *Barbe*, 1839 (P).

Solanum gracile Dun. in DC., Prodr. 13(1): 54. 1852, non *S. gracile* Sendt. in Mart. Fl. Braz. 10: 13. 1846. TYPE: "Hort. Monsp. 1831" (MPU) (= *S. gracile* Otto ex Baxt. in Loud., Hort. Brit. Supp. 2: 673. 1839).

Solanum douglasii Dun. in DC., Prodr. 13(1): 48. 1852. TYPE: California, *Douglas* 1833 (BM, G-DC, K, MPU, P).

Solanum nigrum var. *rigidum* Dun. in DC., Prodr. 13(1): 50. 1852. LECTOTYPE: specimen labelled manu Dunal "1841-1847" (P).

Solanum durangoense Bitt., Fedde Rep. 12: 82. 1913. TYPE: Mexico, *Palmer* 101 (US).

Solanum approximatum Bitt., Fedde Rep. 12: 86. 1913. TYPE: Jamaica, *Nichols* 89 (MO, US).

Solanum ottonis Hylander, Uppsala Univ. Årsskr. 7: 279. 1945. New name for *S. gracile* Dun.

Perennial herb, to 3 m, sometimes epiphytic; stems glabrate to pubescent; often sarmentose. Leaves to 10 cm long but mostly much shorter, ovate to lanceolate, entire or toothed. Inflorescence a condensed, subumbellate raceme, 1- to several-flowered, the peduncle slender, appressed pubescent, pedicels slender, often thickening in fruit, appressed-pubescent, erect or deflexed in flower but always strongly deflexed in fruit. Flowers with the calyx lobes ovate, lanceolate or deltoid, not accrescent; corolla white or mauve, small (to 15 mm across), mostly with a conspicuous eye; anthers mostly 2.5-2.9 mm long. Fruit black or rarely green with dark purple marking, dull, 4-8 mm across; seeds 1.2-1.5 mm across. Pollen: 21.0-23.5 μ . Chromosomes: $2n = 24$ (Gerasimenko & Reznikova, 1968, as *S. douglasii*).

S. nigrescens may be recognized in the field by its rhizomes or adventitious roots, unbranched peduncles, deflexed fruiting pedicels, applied calyces, the usually reflexed corolla with a distinct eye, large anthers, and dull black fruits; but on the herbarium sheet some of these characters disappear and recognition is often difficult. In fresh material, leaves are somewhat more opaque and firmer in texture than *S. americanum*. The meiotic chromosome number ($n = 12$) was verified in this study using a variety of Florida material.

This species is under-represented in most herbaria. Although common, plants are usually scattered or isolated, and the major habitats are unattractive collecting areas. The plant occurs along railroad tracks (often weed treated), amongst dense weed growth along fencerows, rarely as an epiphyte in palm trees, saxicolous on the walls of phosphate pits, and frequently along the seacoasts where it grows on hummocks in salt marshes or on top of the middle or fore dunes. I have not seen a plant in a citrus grove, a favorite habitat for *S. americanum*. Although preferences are not clear, it would seem inclined to habitats of greater osmotic stress than *S. americanum*, and it does not depend to the same extent on recent disturbance. It is present throughout peninsular Florida but absent or nearly absent from the panhandle.

There is considerable geographic variation in this species. Thus California plants often have larger flowers, fuller inflorescences, and heavier pubescence than those of Florida; but many plants of each region can be matched with complete confidence. In Hispaniola, where the species occurs above 1,500 m elevation, plants are generally larger and many berries develop only a partial purple-black coloring. Plants from Panama usually have entirely green fruits. Seed from Hispaniolian and Californian plants when grown in the greenhouse matched the Florida plants.

It is likely that an earlier name will be found for this species; either because a type is found to support an earlier name for plants like those of California, Mexico, and Florida, or because a decision is evolved to include plants of *S. chenopodioides* Lam.⁵ and *S. nigrescens* within the same species concept. *Solanum chenopodioides* and *S. pygmeum* are names for plants of northern Argentina and southern Brazil usually recognizable by smaller, sinuately lobed and thicker leaves than are usual on *S. nigrescens*, but some collections are difficult to assign between these species concepts. Some plants seen along the Indian River, Indian River County, were suggestive of *S. chenopodioides* but are considered variants of *S. nigrescens*. "Black nightshade."

Representative specimens:

ALACHUA: SE of LaCrosse, *Hargraves*, 1946 (FLAS). BAY: Homesteads, Apalachicola, from Herb. *Chapman* 912° (NY). BROWARD: N of Long Island, *Moldenke* 507 (NY). CITRUS: Picnic area near the sea, Western Island, W of Ozello, *D'Arcy* 1568 (FLAS). COLLIER: Roadside S of Tamiami Trail, *Moldenke* 874 (NY). DADE: Humbugus Prairie, *Small* 5573 (NY). DIXIE: Beach 4 m from the sea and exposed to salt spray, Horseshoe Beach, *D'Arcy* 1521 (FLAS). DUVAL: Pablo, *Lighthipe* 385 (NY). FLAGLER: Grassy low ground 3 mi. E of Bunnell, *West et al.*, 1937 (FLAS). GADSDEN: Front of grocery store, US 90, ca. 4 mi. W of Quincy, *D'Arcy* 2574 (FLAS). HENDRY: Devil's Garden Hammock, *Cooley* 797 (USF). HIGHLANDS: Among heavy palmetto undergrowth, N edge of Lake Placid, 1 mi. S of edge of Lake Placid, *Ward* 2-8 (FLAS). INDIAN RIVER: Wooded dune bordering the ocean just N of Vero Beach, *Deam* 60240 (IND). Indian River, *Palmer* 369 (MO). LEE: Homestead, Sanibel Island, *Cooley* 11850 (UNC).

⁵ *Solanum chenopodioides* Lam., *Illustr.* 2: 18. 1794. TYPE: Commerson, Buenos Aires (P; an examination of the suite of specimens at Paris (P) and Montpellier (MPU), leads to the conclusion that Lamarck was describing Commerson plants from Buenos Aires, and his mention of a Mauritius (or Île de Bon) specimen is irrelevant); includes *S. pygmeum* Cav., *Icones* 5: 23, t. 439, f. 2. 1799. TYPE: Laguna de Ballestero, pampas de Buenos Aires, *Nee iter s.n.* (MA); *S. sublobatum* Willd. ex R. & S. in L., *Syst. Veg.* 4: 664. 1819. TYPE: Buenos Aires, Herb. *Willd.* 4336 (B, not seen; IDC 7440. 298 II. 2). This species often, but by no means always, blooms when very small, less than 15 cm tall.

LEON: Sandy hardwood clearing 2 mi. W of Tallahassee, *Godfrey* 53610 (FLAS, GA, NY). LEVY: Just back of beach, Gulf side of island, Seahorse Key, 2 mi. SW of Cedar Key, *Ward* 3249 (FLAS). MANATEE: Waste ground, Bradenton, *Cuthbert* 1458 (FLAS). MONROE: Clearing in hammock, Key Largo, *Kral* 12070 (FSU). NASSAU: In sand dunes beside parking lot, Amelia Beach, *D'Arcy* 1670 (FLAS). ORANGE: Clarcona, *Meislahn* 7 (US). OSCEOLA: St. Cloud, *Bitting* 708 (F). PALM BEACH: Jupiter Island, S end, *Cooley* 4800 (USF). PINELLAS: Cunningham Key, Fort DeSoto County Park, South Tierra Verde, *Lakela* 26716 (USF). POLK: Without locality, *Ohlinger* 454 (FLAS). PUTNAM: Hammock, Conservation Reserve, Welaka, *DeVall*, 1939 (FLAS). ST. JOHNS: In woods near beach, St. Augustine, *Small* 2311 (NY). SARASOTA: Venice, *Rapp* 1956 (FLAS). VOLUSIA: Sandy soil, Morelands', Glenwood, *Van Clef* 1114 (FLAS).

18. *Solanum nigrum* L., Sp. Pl. 186. 1753. LECTOTYPE: Central Asia (LINN 248.18).

Erect, unarmed, sparingly pubescent *herb*; stems sometimes purplish. *Leaves* ovate, elliptical or lanceolate, to 10 cm long, entire to sinuate dentate; petiolate. *Inflorescence* a subumbellate raceme of few to 10 flowers, the peduncle stoutish to 4 cm long, pedicels thickening upwards, puberulent, deflexed in fruit; calyx lobed halfway, the lobes deltoid, applied to the berry in fruit, ultimately becoming free and somewhat reflexed; corolla white or purplish, to 12 cm across, anthers 2.2–2.8 mm long. *Fruit* a dull black globose juicy berry 4–8(–15) mm across; seeds 1.5–2.0 mm. *Pollen*: 24–35 μ . *Chromosomes*: $n = 36$ (Stebbins & Paddock, 1949; Baylis, 1958).

This species is difficult to distinguish from *S. nigrescens* and sometimes from other members of this section in Florida, especially when dried on the herbarium sheet. Living material is usually distinguishable by its weakly reflexed fruiting calyx and by the sturdy construction of the inflorescence. For dried material, the sturdy inflorescence is perhaps the most useful character, although it has not been possible to provide quantitative details of this feature. In general, the seeds are larger than those of *S. nigrescens*. Both peduncle and pedicel are much stouter and sometimes longer than other members of the group. The specimens cited below are the only collections clearly belonging to this species, but there may be others which have been misidentified as *S. nigrescens*. "Black nightshade."

DADE: In wet hammocks, Lake Jovita, *O'Neill* 1927 (MO). ESCAMBIA: Waste ground Pensacola, *Curtiss* 6863 (MO, NY, US). PINELLAS: Open shade of hammock on Cunningham Key, *Lakela* 26719 (USF).

19. *Solanum pseudocapsicum* L., Sp. Pl. 184. 1753. TYPE: herb. Linn. 248.4 (LINN).

Glabrate, unarmed *shrub* to 2 m tall; stem glabrous or minutely puberulent. *Leaves* 2–12 cm long, elliptic or oblanceolate, mostly narrow, apically obtuse to acuminate, basally narrowed, margins entire or faintly sinuate, above mostly glabrous, beneath glabrous or puberulent with sparse dendritic hairs; petiole 5–20 mm long, mostly winged. *Inflorescence* axillary or lateral, a 1–3-flowered fascicle or sessile congested raceme; pedicels 3–10 mm long, thickening in fruit; calyx 4–6 mm long, deeply lobed, the lobes deltoid to narrowly oblong or spatulate, the tips ciliate; corolla white, 1–1.5 cm across, deeply lobed, the lobes

oblong, apically obtuse or acute; stamens subequal, the filaments stout, 1 mm long, the anthers 2.5–3 mm long, stout with large pores and longitudinal slits; ovary glabrous. *Berry* globose, orange-red, 12–18 mm across, minutely apiculate; not juicy or mucilaginous; seeds yellow, compressed-lenticular, 3 mm across. *Chromosomes*: $n = 12$ (Madhavadian, 1968).

This species is recognizable by its small white flowers which resemble those of *S. nigrum* or *S. americanum* and by the showy bright red berries which are displayed outside of the foliage. The dendritic hairs are distinctive. *Solanum pseudocapsicum* has been confused with *S. capsicastrum* Link ex Schau in Otto & Dietrich (Allg. Gartenz. 1: 228. 1833), which is copiously pubescent, pilose on the peduncles and calyx, and which has much smaller flowers with anthers only 2 mm long, and yellow fruit.⁶

Plants and cuttings of *Solanum pseudocapsicum* are widely offered for sale through novelty stores and other outlets before Christmas. They are usually sold in pots or cans when 25–50 cm tall and in both flower and fruit. Fruiting branches are sold in bunches along with cut flowers. The species is occasionally grown out-of-doors as an ornamental or for nursery stock, and it is sparingly naturalized on the southern Coastal Plain. Spontaneous plants are rare in Florida. The type locality for this species is Madeira, where it grows wild; it is also native to Brazil. "Jerusalem cherry."

ALACHUA: Cultivated and escaping, NW Gainesville, D'Arcy, 1968 (FLAS, MO, USF).

20. ***Solanum pseudolulo*** Heiser, Ciencia y Nat. 11: 5. 1968. LECTOTYPE: Cultivated, seed from Colombia, Heiser 6343 (IND, photo MO).

Densely tomentose, erect, armed *shrub* or *tree*; stems stout, stellate-tomentose and copiously armed with green to orange brown or stramineous acicular spines 3–8 mm long. *Leaves* of juveniles to 60 cm long and 30 cm broad, smaller on older plants, broadly ovate, angular-sinuate, the lobes and apex acuminate, the sinuses rounded, basally cordate or truncate, oblique, velutinous and appearing ciliate above, loosely tomentose beneath, the hairs sessile, pauciradiate with elongate midpoints and long-stalked, pauciradiate to sub-echinoid, both sides copiously armed with acicular, green, sometimes purplish spines, the epidermis sometimes purplish; petiole 3–6 cm long, tomentose and spiny. *Inflorescence* becoming lateral, crowded, subumbellate and subsessile, several-flowered, pedicels 8–10 mm long, stout; calyx 7–10 mm long, lobed past halfway, ovate, apically acuminate; corolla white, campanulate, 2–3 cm across, thick and fleshy, lobed $\frac{3}{4}$ way down; stamens equal, the anthers sessile, basally imbedded in the corolla tube, 6 mm long and 3 mm across, abruptly narrowed to an outward curving beak with minute pores; style inserted at an angle, the ovary tomentose. *Fruit* a juicy, red, persistently tomentose, globose berry to 5 cm across. *Pollen*: 16.0–21.0 μ .

⁶ Details taken from the lectotype specimen: "Brasil, Sellow, ex herb. Berlin," labelled by Link (?), and "donné par le Museum Bot. de Berlin 1855" (P).

This species is distinct in its large, felty, spiny leaves, congested flowers and sessile anthers. The fruit is agreeably sweet and tart. Heiser reported light yellow, nearly white pulp, but the Florida plants seen had orange pulp.

Solanum pseudolulo is cultivated as a curiosity in the South Florida nursery trade.

Lawrence (1960a) noted cultivation of *S. quitoense* Lam. in Florida, but no material of this species was seen. It is similar to *S. pseudolulo* but differs in having short but manifest anther filaments and in the purple suffusion of the leaves arising from pigment in the pubescence rather than in the leaf surface.

Representative specimens:

ALACHUA: Cultivated, Gainesville, *D'Arcy* 2701C (MO); 2701B, 2071D (FLAS). CULTIVATED: Missouri Botanical Garden from seed of *D'Arcy* 2701B, *D'Arcy* 3895 (MO, USF).

21. *Solanum racemosum* Jacq., Enum. Pl. Carib. 15. 1760; Sel. Stirp. Amer. 50, t. 36. 1762 TYPE: not seen.

Solanum igneum L., Sp., Pl., ed. 2: 270. 1762. TYPE: not seen.

Solanum anacanthum Dun. in DC., Prodr. 13(1): 183. 1852. TYPE: Mexico, Pavon s.n. (G).

Solanum racemosum Jacq. var. b, Duss, Fl. Phan. Ant. Franc. 414. 1897. TYPE: Based on *S. igneum* L.

Solanum ramosum Poir. in Lam., Encycl. 4: 281. 1796. Error for *S. racemosum*.

Shrub to 2 m tall, rarely spiny; twigs puberulent to villous with sessile stellate hairs. Leaves to 20 cm long, lanceolate or elliptical, apically acuminate, basally obtuse, mostly oblique, veins 12–20 on each side of the midvein, the margin subentire; petioles 5–20 mm long. Inflorescence terminal becoming lateral, an unbranched raceme 4–8 cm long, somewhat longer in fruit, the pedicels 8–15 mm long, in fruit longer and appearing cernuous and secund. Flowers elongate, the calyx 1.5–2 mm long with 5 deltoid undulate teeth; corolla white, ca. 1 cm long, deeply lobed, the lobes narrowly lanceolate; stamens equal, forming a coherent tube, the filaments united halfway up, the anthers 6–8 mm long, slender, slightly tapering, coherent by lateral grooves and ventral pubescence; ovary with a few stellate hairs. Fruit shiny red, globose, 6–8 mm across. Chromosomes: $n = 24$.

Very like *S. bahamense* to which it is closely related, this species differs in its white flowers, larger, longer leaves with more lateral veins and in its longer anthers. It is less commonly spiny, but spines may become copious, acicular or almost deltoid, and yellow to orange red. Chromosomes of this species were counted using root tips of Howard 17730 (A) from St. Vincent, Windward Islands.

Solanum racemosum is a native of the Windward Islands, and it occurs in Florida only as an occasional adventive. It would appear to hybridize with *S. bahamense*, and the collections cited here all bear some characters seemingly derived from *S. bahamense*. The above description is taken from a range of Windward Island material at MO and IJ.

MONROE: Hammock growth and roadside areas ca. 10 mi. N of junction US 1 and Fla 905, Key Largo, Long et al. 1773 (USF). Second growth hammock and limestone margins, Plantation Key, Long 1989 (USF). Coastal strand and hammock ca. 5 mi. N of junction US 1 and Fla 905, Key Largo, Long et al. 2809 (USF). PALM BEACH: Singer Island, E of N Palm Beach, McCart 11049 (USF).

22. *Solanum rostratum* Dun., Hist. Sol. 234, t. 24. May 1813. TYPE: ex Hort. Monsp. (G, G-DC, MPU, P).

Solanum heterandrum Pursh, Fl. Amer. Sept. 1: 56, t. 7; 2: 731. Late 1813. TYPE: not seen, based on seed from Nuttall, Missouri River.

Androcera lobata Nutt., Gen. Amer. 1: 129. 1818. TYPE: Missouri River, Nuttall s.n. (MO-as *Solanum heterandrum*; G-DC). Nuttall cited *S. heterandrum* Pursh.

Nycterium rostratum (Dun.) Link, Enum. Hort. Berol. 1: 189. 1821.

Nycterium lobatum (Nutt.) Sweet, Hort. Brit., ed. 1. 301. 1826.

Nycterium flavum Lindl. in Donn, Hort. Cantabr., ed. 11: 76. 1826. TYPE: Based on *Solanum heterandrum*.

Nycterium luteum Steud., Nom., ed. 2. 2: 199. 1840. Nomen nudum.

Solanum propinquum Mart. & Gal., Bull. Acad. Bruxelles 12(1): 143. 1845. TYPE: Mexico, Galeotti 1167 or 1205 (BR, not seen).

Solanum chrysacanthum Dun. in DC., Prodr. 13(1): 330. 1852. TYPE: Mexico, Andrieux 191 (G-DC, MPU).

Densely armed, dissected *herb* to 1 m tall; pubescent with stalked, eglandular, nearly porrect, pauciradiate stellate hairs, copiously armed with straight, slender, yellow spines to 8 mm long and spine-like bristles. *Leaves* to 15 cm long, ovate to obovate, mostly 2-pinnatifid, the lobes 3–7 on each side of the midvein, apically obtuse to rounded, both sides pubescent with sessile, pauciradiate, stellate hairs bearing long midpoints, the undersides with some multi-radiate stellae, the major veins armed; petioles often as long as the leaves, mostly armed. *Inflorescence* lateral, an unbranched, 5–10-flowered raceme, the pedicels tomentose, 10–15 mm long; calyx 8–10 mm long, lobed nearly to the base, the lobes lanceolate, apically acuminate and unarmed, the basal portion tomentose and mostly spiny and bearing bristles, eglandular; corolla bright yellow, 25–30 mm across, lobed $\frac{1}{4}$ – $\frac{1}{3}$ way down, the lobes deltoid, unequal; stamens dimorphic, the filaments 1.5–2.2 mm long, one anther 11–14 mm long, stout but tapering abruptly and arcuate upwards, the remaining 4 subequal, 6–7 mm long, slightly curved, the terminal pores small; ovary glabrous, the style filiform, apically circinnate, about as long as the long anther. *Fruit* enveloped in the accrescent, spiny persistent calyx, the calyx and fruit wall sometimes withering to release the seeds through gaps; seeds black, puck-shaped, not flat or lenticular as in most other species of *Solanum*, 2–2.5 mm across. *Pollen*: 20.5–24.0 μ . *Chromosomes*: $n = 12$ (Averett & Powell, 1972).

This species is similar to *S. citrullifolium* which also has spiny dissected leaves and strongly unequal anthers, but that species has glandular, simple hairs and blue flowers instead of eglandular, stellate hairs and bright yellow flowers as in *S. rostratum*. *Cnidoscolus stimulosus* (Michx.) Engelm. & Gray, Euphorbiaceae, is sometimes confused with *Solanum rostratum* in the herbarium. The *Cnidoscolus* has white flowers, palmately divided leaves, and lacks spines, although the dried stinging hairs do resemble juvenile spines.

A troublesome weed in regions where it is plentiful, *S. rostratum* is native to northern Mexico and the Great Plains of the United States. It has been introduced to the plains of Russia and to the West Indian Islands.

This species is a rare adventive in Florida, although it may form persistent local colonies. It may be expected in waste places.

Solanum rostratum and closely related species have been proposed at generic

rank and as sect. *Androceras* (Nutt.) Marz. Three names for yellow flowered species of sect. *Androceras*, *S. angustifolium* Mill. (1768), *S. cornutum* Lam. (1794), and *Nycteria cardaminefolium* Vent. (1805) are earlier than *S. rostratum* but refer to another related species, probably what has been going under the name *S. macrosolum* Fern. (1900) from southern Mexico. Dr. Susan M. Coles, University of Birmingham, has examined the type of *S. angustifolium*. "Buffalo bur."

23. *Solanum seaforthianum* Andr., Bot. Rep. 8, t. 504. 1808. TYPE: not seen.

Glabrate, unarmed *vine*, high climbing to 6 m long, sometimes blooming as a juvenile and appearing as a small shrub; emergent growth with a few simple hairs, otherwise glabrous, stems mostly slender. *Leaves* 5–16 cm long, pinnatisect, the lobes 2–6 cm long, lanceolate to broadly elliptic, the terminal lobe the largest. *Inflorescence* a many-flowered pendent panicle 10–20 cm long, the pedicels 8–16 mm long, articulating almost at the base. *Flowers* showy, the calyx subtruncate, 2–3 mm long, tardily splitting; corolla blue, purplish, or white, 2–5 cm across, deeply lobed, the lobes lanceolate or obtuse; stamens subequal, the filaments 2 mm long, narrowing upwards, glabrous, the anthers stout, 2.5–3.5 mm long, opening by large pores which may coalesce and by longitudinal slits; ovary and style glabrous. *Berry* globose, 1–2 cm across, bright, shiny, scarlet, juicy; seeds ca. 3.5 mm across, much compressed. *Pollen*: 17.0–21.0 μ . *Chromosomes*: $n = 12$ (Roe, 1967b).

This species is readily recognized by its climbing aspect, lobed leaves and large open panicles of flowers followed by red berries. The leaves somewhat resemble those of *S. jasminoides*, but in that species there are never more than one or two pairs of lobes at the base of the leaf and many of the leaves are entire. In *S. jasminoides* the corolla is lobed less than halfway down and the filaments are pubescent on the ventral surface.

Solanum seaforthianum is occasionally cultivated for ornament and is naturalized throughout the state. It is most commonly seen in citrus groves and hammocks in South and Central Florida and is rare in other districts. The species is a native of the West Indies, perhaps Cuba, and is locally naturalized in Central America.

HILLSBOROUGH: Cultivated, University of South Florida garden, from seed from Jalisco, Mexico, Burch 5335 (USF).

24. *Solanum sisymbriifolium* Lam., Illustr. 2: 25. 1793 [1794]. TYPE: ?Argentina, Commerson s.n. (MPU, P-Lam).

Solanum balbisii Dun., Hist. Sol. 232, t. 3D. 1813. TYPE: manu Dunal (P-Bonpl.).

Solanum decurrens Balbis, Hort. Acad. Taurin. 17: 360. t. 1. 1810, non Vell. 1805. TYPE: "Jardin des Plantes" (MPU, P).

Solanum inflatum Hornem., Hort. Hafn. 1: 221. 1813. TYPE: Horneman s.n. (C).

Large, viscid-pubescent spiny *herb* to 60 cm tall; stems erect, stout, green, viscid with glandular simple hairs and bayonet hairs, and with scattered eglandular stalked multiradiate stellate hairs, copiously armed with orange, straight,

acicular to stout, basally compressed spines to 15 mm long; sometimes spreading by long rhizomes; fistulose. *Leaves* to 40 cm long and 25 cm wide, smaller upwards, pinnatifid to pinnatisect, the lobes sinuate or angular with umbonate tips, above with mostly eglandular, apparently simple hairs and sessile, pauciradiate long-armed hairs, beneath with glandular hairs, the veins mostly villous and copiously armed; petioles 1–6 cm long, flattened above. *Inflorescence* a lateral unbranched raceme emergent from the foliage, the first flowers staminate or perfect, the pedicels 0.4–1.5 cm long, villous. *Flowers* showy, the calyx 5–6 mm long, armed, lobed $\frac{2}{3}$ way down, the lobes lanceolate with conspicuous midveins; corolla white, light blue or mauve, ca. 3 cm across, lobed $\frac{1}{3}$ way down; stamens equal, mostly separate, the filaments 1.5–2 mm long, narrowed slightly upwards, glabrate with a few glandular simple hairs, the anthers 8 mm long, somewhat attenuate with terminal pores and longitudinal slits; ovary with sparse, glandular simple hairs, the style glabrate. *Berry* bright shiny scarlet, juicy, 8 mm across, loosely enveloped until maturity by the calyx with its enlarged spines which ruptures to expose the fruit; seeds 3 mm across, compressed-lenticular. *Pollen*: 29.5–40.0 μ . *Chromosomes*: $n = 12$; $2n = 24$ (Gerasimenko & Reznikova, 1968).

With its robust habit, copious armament and dissected leaves this species is distinct from other species of *Solanum* in Florida. The accrescent calyx which loosely envelops the scarlet fruit until maturity is perhaps unique in the genus.

Solanum sisymbriifolium is uncommon in Florida, occurring along the northern reach of the state where it is to be found on railroads and along sandy, barren roadsides. The species is a native of Argentina but has long been cultivated as a curiosity in European gardens. A number of self-pollination trials suggest that this species is self-sterile.

ALACHUA: Roadside, Fairbanks, *Weber* & *West*, 1927 (FLAS). BAY: Roadside, Fountain, *West*, 1937 (FLAS). CITRUS: Along railroad, Inverness, *Burger*, 1927 (FLAS). DUVAL: Jacksonville, *Churchill* 713 (MO). Waste places, Jacksonville, *Curtiss* 2201 (MO), 5686 (FLAS, GA, GH, MO, NY, US). Near Jacksonville, *Curtiss* 4401 (MO). Garbage grounds, Jacksonville, *Smith*, 1882 (GH). Chaffee Road near US 10, *Creager* 684 (FLAS). ESCAMBIA: US 90 at bridge over Bayou Texar, Pensacola, *D'Arcy* 2501 (FLAS, MO, USF). Pensacola, *Knight*, 1939 (FLAS). Sandy vacant lot, West Pensacola, *Godfrey* 56695 (DUKE, FSU, GH). Near harbor, Pensacola, *Rolfs*, 1893 (F, FLAS). HERNANDO: Richland, *McFarlin* 5956 (MICH). LEON: Near Tallahassee, Blanton, *O'Neill* 6578 (MO, US). POLK: Bartow, *Buswell*, 1919 (BUS). ST. JOHNS: Sand along roadside, Matanzas Inlet, *Smith*, 1929 (NY). STA. ROSA: Beach of Pensacola Bay, *Brinker*, 1941 (MO). On berm, Fla 399 ca. $\frac{1}{4}$ mi. S of US 98 at Gulf Breeze, *D'Arcy* 2507 (FLAS). In scrub at Pensacola Beach, *Godfrey* 54579 (FLAS, FSU, GA). East Florida, *Palmer*, 1874 (MO). WALTON: Occasional on edge of sand pine woods, Mossy Head, *McDaniel* 4853 (FSU). Railway embankment, S side of DeFuniak Springs, *D'Arcy* 2563 (FLAS). WASHINGTON: Choctawatchee River W of Caryville, *Godfrey* 60779 (FSU).

25. *Solanum torvum* Sw., Prodr. 47. 1788. TYPE: Jamaica, Swartz (?s, not seen).

Solanum ferrugineum Jacq., Hort. Schoenbr. 3: 46, t. 334. 1798. TYPE: not seen.

Solanum ficifolium Ort., Nov. Pl. Hort. Matrit. 116. 1800. TYPE: not seen.

Armed *tree* or *shrub* to 5 m tall; twigs tomentose with stalked dendritic and stellate hairs bearing short midpoints and long arms, sparingly to profusely armed with stout, flattened, straight or curved spines. *Leaves* ovate or elliptic, to 25 cm long, sinuate to pinnatifid, the sinuses mostly rounded, above scabridulous to

velutinous with dispersed stellae bearing long midpoints, beneath tomentose, the veins sometimes armed. *Inflorescence* lateral, once-branched, a pair of short racemes, the peduncle and pedicels hispid with mostly glandular simple hairs, becoming woody in fruit, the pedicels 1–5 cm long, filiform, purplish; calyx 4–8 mm long, lobed halfway down, the lobes unequal, acute-acuminate with narrow tips; corolla glittering white, 15–25 mm across, lobed $\frac{1}{3}$ way down; stamens subequal, the filaments ca. 2 mm long, glabrous, the anthers 9–12 mm long, elongate and attenuate with small pores and longitudinal slits; ovary with short, glandular simple hairs on top, the style basally pubescent. *Fruit* erect, subglobose, 10–15 mm across, glabrous, mucilaginous, yellow but seldom seen ripe. *Pollen*: 21.5–34.0 μ , irregular in size and shape. *Chromosomes*: $2n = 24$ (Roe, 1967b).

This species is distinct from other Florida members of the genus in its arborescent habit, stout, recurved spines, and its white flowers followed by grape-size berries.

A rare plant in the state, *Solanum torvum* has been collected only a few times in South Florida. It is a pan-tropical weed, which is plentiful in the Greater Antilles. In Central America it apparently hybridizes with several other similar species and material resembling the typical is not common. One of these, *S. ochraceo-ferrugineum* (Dun.) Fern., has appeared from time to time as a volunteer at Fairchild Tropical Garden (*Meagher* 824 (FTG); *Read* 1511 (FTG)). It differs in its mostly eglandular, stellate-pubescent pedicels and calyces and in other characters (see D'Arcy, 1973).

PALM BEACH COUNTY: Open area among pines collected one mile west of Rt 441 just north of Hillsborough Canal, flowers white, *Meagher* 889 (MO).

26. *Solanum tridynamum* Dun. in Lam., *Encycl. Supp.* 3: 776. 1814. TYPE: Mexico, *Sesse & Mocino* 1538, 5367, or 5367bis (all MA).

Solanum amazonium Ker-Gawl., *Bot. Reg. t.* 71. 1815. TYPE: not seen.

Solanum obtusilobum Mart. & Gal., *Bull. Acad. Bruxelles* 12(1): 142. 1845. TYPE: Mexico, *Goleotti* 1168 (P).

Solanum tridynamum var. *stylosum* Dun. in DC., *Prodr.* 13(1): 334. 1852. TYPE: Mexico, *Pavon s.n.* (G).

Solanum tridynamum var. *anoplocladum* Dun. in DC., *Prodr.* 13(1): 334. 1852. TYPE: cult. hort. Genève. (G-DC).

[*Solanum polygamum* Sesse & Moc., ined. non Vahl. TYPE: Mexico, *Sesse & Mocino* 1538, or 5367bis (MA).]

Mostly armed *subshrub* to 1 m tall; stem tomentose with stalked, pauciradiate stellate hairs and reddish-brown, acicular spines to 5 mm long. *Leaves* to 15 cm long, oblong, elliptical or lanceolate, often oblique, sinuate or sub-entire, pubescent with stalked pauciradiate stellae, more so beneath, the venation obscure above, prominent beneath. *Inflorescences* lateral, sparingly branched racemes, a few flowers opening at a time, the first few staminate; pedicels 1 cm long, articulating with a conspicuous scar at the base, often spiny, more so on perfect flowers. *Flowers* showy, the calyx ca. 12 mm long, lobed just beyond halfway down, the lobes filiform; corolla deep magenta or royal purple, 4–5 cm across, lobed about halfway down, the lobes deltoid with membranaceous margins; stamens dimorphic, the lower 2 much shorter, the filaments 1.5 mm long, stout,

terete or slightly flattened, perhaps basally connate, the 3 upper anthers 12 mm long, circinate apically, the lower 2 5 mm long, connivent with the upper three, almost straight, all pores small, longitudinal slits not evident; style of perfect flowers much exceeding the anthers, apically circinate, blue or purple, that of the staminate flowers a pair of triangular flaps not exceeding the filaments. *Fruit* a brownish leather-like berry, sometimes long persistent on the plant and withering to expose the seeds, 12–15 mm across, the basal half enclosed by the accrescent calyx, the lobes of which exceed the fruit; seeds lenticular with wide margins, brownish, ca. 3 mm across. *Chromosomes*: $2n = 24$ (D'Arcy, 1969); $n = 12$ (Averett & Powell, 1972, as *S. amazonium*).

This species is distinctive in its showy purple flowers and strongly unequal anthers. The subentire or sinuate leaves distinguish it from *S. citrullifolium* which also has zygomorphic purplish flowers. The leaf of *S. tridynamum* somewhat resembles that of *S. elaeagnifolium* but lacks lepidote hairs and is much broader in outline. It is closely related to *S. vespertillio* Ait. of the Azores.

Solanum tridynamum is cultivated for ornament in South Florida, and the present stock seems to be a recent introduction. The species is a native of Mexico. It has long been known under the name *S. amazonium*.

DADE: Cultivated, Kendall, Gillis 7014 (MO). Volunteer, Fairchild Tropical Garden, Gillis 8530 (MO). (MISSOURI) Cultivated, Missouri Botanical Garden from seed from Miami, Florida, D'Arcy 3901 (A, ADW, C, FLAS, MO, MPU, USF).

27. ***Solanum tuberosum* L.**, Sp. Pl. 185. 1753. LECTOTYPE: herb. Linn. 248.12 (LINN).

Foetid, pubescent, unarmed *herb* to 1 m tall, stems weak, often villous, sometimes viscid. *Leaves* 10–13 cm long, pinnatisect with small lobes interstitial between the major lobes, the lobes elliptic to ovate, mostly pubescent. *Inflorescence* terminal, tardily lateral, an erect, sparingly branched, several-flowered panicle; pedicels 1–2 cm long, articulated part way up. *Flowers* with the calyx lobed halfway, 4–6 mm long, the lobes cuspidate; corolla white or purple, often drying yellow, the margin undulating, the lobes short; filaments broader than long, 1 mm long, the anthers stout, ca. 6 mm long with large terminal pores and longitudinal slits; ovary glabrous. *Fruit* yellow, globose or slightly apiculate, 1–3 cm across, mucilaginous or juicy.

This species is recognizable by its strong odor, weak stems, divided leaves, and by the articulation part way up the pedicels.

Cultivated as an important crop throughout the state, it is sometimes spontaneous around packing sheds and is rarely persistent in fields for a number of years. "Irish potato."

ALACHUA: Single plant in center of several-year abandoned potato field, Fla 121, ca. 2 mi. S of LaCrosse, D'Arcy 1678 (FLAS).

28. ***Solanum villosum* Mill.**, Gard. Dict., ed. 8. 1768. TYPE: not seen.

Solanum alatum sensu Small, Man. S.E. Fl. 1114. 1933, ?an Moench.

Erect, pubescent unarmed *herb* to 60 cm tall, branching at the base; stems villous with simple hairs. *Leaves* ovate, to 3 cm long, weakly toothed or entire, petiolate, ?viscous. *Inflorescence* a several-flowered subumbellate raceme, the peduncle villous, ca. 10 mm long, the pedicels 7–10 mm long, ?nodding; flowers white, resembling those of *S. americanum* but the calyces more pubescent. *Fruit* a red globose berry ca. 6 mm across; seeds lenticular, yellowish, ca. 2 mm long. *Chromosomes*: $2n = 48$ (Gerasimenko & Reznikova, 1968).

This species is distinct in its overall pubescence of weak, perhaps viscid hairs, and in its red fruits.

Solanum villosum is a weed of the Old World, and only one collection, has ever been encountered of this species in the Americas. It may have arrived as a waif on ships' ballast. Several specimens distributed in the past by American scientific supply companies under the name *S. nigrum* are of this species, but there is no label information indicating that they were collected in the New World.

ESCAMBIA: Waste ground, Pensacola, Curtiss 6493 (GH, MO, UC).

29. ***Solanum wendlandii*** Hook. f., Bot. Mag. t. 691. 1887. TYPE: Cultivated. Kew Gardens, 28 July 1886 "plant received from Mr. Wendland, Botanic Gardens, Hanover" (K).

Glabrate, armed, climber or sprawling *shrub*; stems often with stout recurved spines. *Leaves* 15–18 cm long, the first leaves smaller and entire or 3-lobed, later leaves pinnatifid with broad rounded lobes, the veins mostly armed beneath, glabrous; petiole 5–8 cm long, mostly armed. *Inflorescence* a dense, pendulous panicle to 20 cm long, some flowers functionally staminate; pedicels 8–15 mm long, slender, articulating at the base. *Flowers* showy, the calyx 4–8 mm long, lobed $\frac{1}{2}$ or $\frac{1}{3}$ way down; corolla blue or mauve, the margin undulate with short, ca. 2-mm-long teeth; stamens subequal in length but one anther much longer than the others and bent to meet them at the same level, the anthers 8–10 mm long, elongate and little tapering, with both terminal pores and longitudinal slits; ovary glabrous. Not fruiting in Florida. *Pollen*: 19.0–23.5 μ . *Chromosomes*: $2n = 24$ (Roe, 1967b).

Solanum wendlandii is distinctive in its recurved spines on the undersides of the glabrous, mostly lobed leaves. The showy flowers and one bent anther are also good characters for recognition.

This species is occasionally cultivated for ornament in South Florida. The original source of the seed was Costa Rica, and it is not known to fruit elsewhere.

INDIAN RIVER: Cultivated, Vero Beach, Lawson, 1969 (MO).

30. ***Solanum wrightii*** Benth., Fl. Hongkong 243. 1861. TYPE: not seen.

Tree to 12 m tall, stellate pubescent, armed or not; stems sparingly hispid with long-stalked (1–2 mm) stellate hairs and often with straight tapering spines. *Leaves* to 35 cm long, broadly ovate, sinuate lobed, mostly basally oblique, above with dispersed, glandular simple or stellate hairs, beneath with sparse to dense

stalked stellate hairs, often with straight yellow or green spines; petioles 5–8 cm long. *Flowers* showy, the calyx 12–15 mm long, deeply lobed, the lobes with slender, inrolled tips, hispid outside with mostly glandular simple hairs; corolla large, 5–9 cm across, opening deep purple and fading through blue to white over several days, lobed $\frac{1}{3}$ way down, the lobes obtuse with sharp tips, the margins erose; stamens subequal, the filaments 2–3 mm long, stout, glabrous, the anthers ca. 15 mm long, initially coherent by lateral grooves, then free, with small pores and no longitudinal slits; ovary and style glabrate with a few short glandular simple hairs, in staminate flowers the style equalling the filaments. *Fruit* not seen, “almost rounded, the size of a golf ball” (Blatter & Mallard, 1954).

This species is distinctive in its large, fading flowers and large leaves. Plants are sometimes offered for sale in South Florida in cans when about 70 cm tall and in full bloom. A native of South America, *S. wrightii* is sometimes used as a street tree in India (Blatter & Mallard, 1954).

ALACHUA: Cultivated, University greenhouse, Gainesville, D’Arcy 2701A (MO).

31. ***Lycianthes rantonnei*** (Carr.) Bitt., Abhandl. Naturw. Ver. Bremen 24(2): 292–520. 1919, “Rantonnetii.”

Solanum rantonnei Carr., Revue Horticole 1859: 135, t. 32. 1 March 1859. TYPE: not seen. *Solanum rantonnetii* Carr. ex Lescuyer, Hort. Français, sér. 2. 1(9): 197, t. 16. 1859 [late 1859 or 1860], orth. mut.

Erect, unarmed *shrub* to 2 m tall; stems slender with prominent angles leading away from the nodes; twigs puberulent with mostly simple and some branched hairs, glabrescent. *Leaves* thin, apically acuminate, entire or weakly sinuate margined, sparingly pubescent, short petiolate. *Inflorescence* a terminal or axillary fascicle of 1–5 flowers; pedicels deciduous near the base, slender, 3–4 cm long; calyx 2–3 mm long, truncate with 1–5 small, sometimes umbonate apical teeth and 1–5 basal umbos or swellings alternating with the apical teeth; corolla deep blue purple with a well-defined yellow eye, 3.5–4 cm across, the limb broad and apically undulate; stamens alike, the filaments 1–3 mm long, stout, at the base sparingly dorsally pubescent, the anthers 2–4 mm long, stout with large terminal pores; style recurving over the anthers, ovary glabrous. *Fruit* (unknown in Florida) red, heart-shaped, 20–35 mm across. *Pollen*: 17.0–23.0 μ . *Chromosomes*: $2n = 24$ (Gerasimenko & Reznikova, 1968, as *Solanum rantonnetii*).

This species is distinct in its showy deep blue or purple flowers with a distinct yellow eye. The truncate calyx and basal swellings identify it as a species of *Lycianthes* rather than *Solanum*, but this feature is less apparent here than in most other species of *Lycianthes*.

Lycianthes rantonnei has long been erroneously known as *L. rantonnetii*, a change first made by Lescuyer in reviewing Carriere’s original publication. Difficulties in dating the two French journals cited above were resolved by J. A. Leussink, International Association for Plant Taxonomy. As Carriere used the epithet *rantonnei* three times in his brief publication, it is clear that his formation was deliberate. W. T. Stearn, British Museum (N.H.), pointed out in conversa-

tion that formation of the Latin epithet on *Rantonneius* as chosen by Carriere rather than on *Rantonnetius* as chosen by Lescuyer preserves the French pronunciation of M. Rantonnet's name.

Lycianthes rantonnei is grown out-of-doors in the Tampa-St. Petersburg area where it is sold by nurseries in cans. Material seen had corollas 4 cm across and may represent a different introduction from that noted by Lawrence (1960): "Specimens of native material (Argentina and Paraguay) bear flowers scarcely 12 mm across, but all cultivated material otherwise identifiable with it bears flowers that are about 25 mm across and is presumed to be the selection introduced many years ago as var. *grandiflorum* and now designated as cv. 'Grandiflorum'."

BAKER: Cultivated, Glen St. Mary, Hume, 1923 (MO). PINELLAS: Cultivated, Clearwater, Black 3 (FLAS).

32. ***Lycopersicon esculentum* Mill., Gard. Dict., ed 8. 1768. TYPE: not seen.**

Solanum lycopersicum L., Sp. Pl. 1753. TYPE: not seen.

Scandent, foetid herb to 60 cm tall, stems often viscid-pubescent with simple hairs. Leaves to 25 cm long, pinnatisect, usually with an alteration of large and small lobes, rarely simple. Inflorescence lateral, few flowered, racemose or sub-umbellate; peduncles to 7 cm long. Flowers mostly 6–8-merous, calyx lobed to near the base, the lobes lanceolate, accrescent and recurving in fruit; corolla greenish-yellow, 7–9 mm long, lobed to near the base, the lobes lanceolate; stamens equal, the anthers yellow, 11–14 mm long, narrowly oblong, tapering to a sharp, non-polleniferous point, coherent into a tube by intermeshed lateral and ventral hairs, opening introrsely by longitudinal slits; ovary with minute, erect simple hairs, the style basally pilose. Fruit a large, red, juicy berry, 2–8-loculed by proliferation of the placentae; seeds 2–3 mm across, compressed, thick margined, pilose. Pollen: 23.5–29.5 μ . Chromosomes: $2n = 24$ (many reports).

This species is recognizable by its unarmed, dissected, odorous foliage, its small yellow flowers and large, juicy fruit. It is an important crop plant in many parts of Florida. It is spontaneous throughout the state and naturalized in South Florida. Small fruited forms sometimes seen in the wild were all referable to this species. "Tomato."

The "Cherry Tomato," *Lycopersicon esculentum* var. *cerasiforme* (Dun.) Alef., is probably cultivated in the state from time to time. "It has thinner leaflets that are mostly smaller and usually less acuminate than in the typical material, the flowers are prevailing in longer clusters, and the red or yellow regular and globular fruit has fewer cells and is only about 2 cm in diameter" (Correll & Johnston, 1970).

OKALOOSA: Beside city garbage dump, Fort Walton Beach, D'Arcy 2494 (MO).

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NOTE ADDED IN PROOF

After this paper was in press specimens were received of another species of *Cyphomandra*. This appears to be *C. uniloba* Rusby (Mem. Torrey Bot. Club 6: 90. 1896. Type: Bolivia, *Bang* 1535 (MO)). It is a small tree with minutely pubescent, ovate leaves, the bases sometimes cordate; inflorescences at a dichotomy of the stem or obviously concaulescent above one, slender, branched, many-flowered, with a conspicuous cicatrix; flowers ca. 8 mm long, the petals thick, ovate, white, odorous. The minute but dense indumentum consists of short, several-celled, acicular hairs and short glandular hairs, the glands globose, apparently multicellular.

HILLSBOROUGH: Tub plant from nursery in Sarasota, USF Botanical Garden, Tampa, *Burch* 6794 (MO). Tub plant from seed from Geo. Park Seed Co. as '*Cyphomandra fragrans*,' USF Botanical Garden, Tampa, *Burch* 6795 (MO).